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FOOD INDUSTRIES

THE NEWS OF • PRODUCTION • ENGINEERING • DISTRIBUTION

BAKERY PRODUCTS

BEVERAGES

CANNED AND PRESERVED FOODS

CONFECTIONERY AND CHOCOLATE

DAIRY PRODUCTS AND ICE CREAM

FATS AND OILS

FLOUR AND CEREAL PRODUCTS

MEATS AND MEAT PRODUCTS

OTHER FOODS AND SPECIALTIES

SEPTEMBER 1934

McGRAW-HILL PUBLISHING COMPANY, INC.

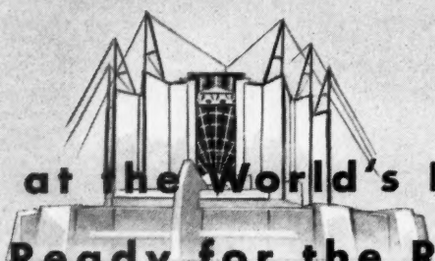
A.A.A., Meet H.C.L.!

Only part of the lay public will be misled by the outcry against profiteering led by Consumers' Counsel of A.A.A. and the Secretary of Agriculture.

It is only the startled outburst against the unanticipated but inevitable price rise for which the New Deal has been working so earnestly. Yet these price increases would have come had there been no drought, albeit more slowly.

Righteous rage, such as this, is either a smoke screen or undeniable proof that the "planners" failed to foresee in higher prices an old acquaintance—H.C.L.

And the food industries will be blamed for high prices, even as they have been denounced for low prices.



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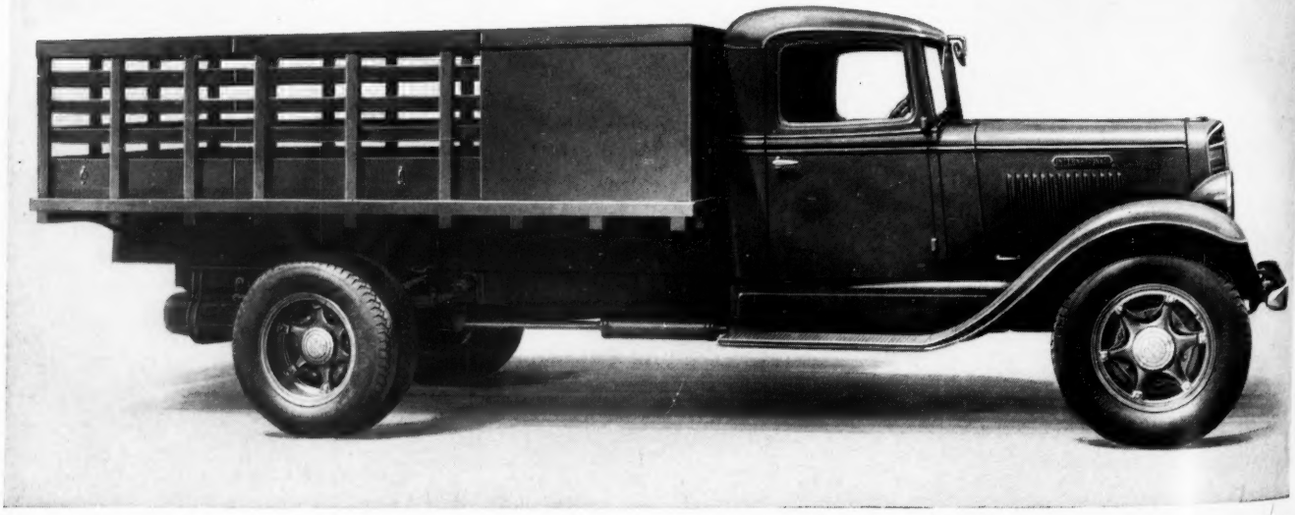

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FOOD INDUSTRIES

NEWS OF PRODUCTION • ENGINEERING • DISTRIBUTION

LAURENCE V. BURTON, *Editor* — LOUIS F. STOLL, *Vice-President* — M. A. WILLIAMSON, *Manager*

Editorial Staff:
E. S. STATELER, F. K. LAWLER, New York

R. S. McBRIDE, *Washington* — PAUL WOOTON, *Washington* — LEONARD CHURCH, *Cleveland* — N. A. BOWERS, *San Francisco* — S. T. HENRY, *Spruce Pine, N. C.*

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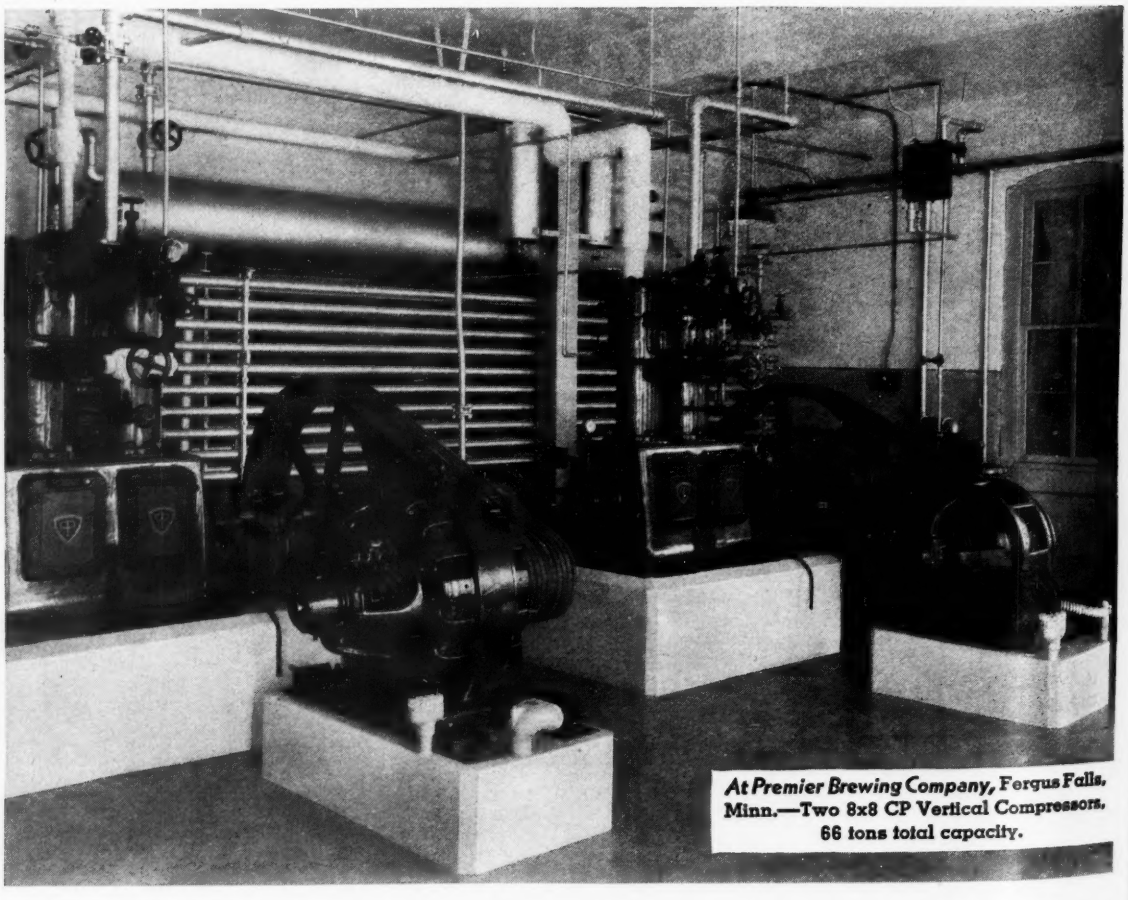


At Premier Brewing Company, Fergus Falls, Minn.—Two 8x8 CP Vertical Compressors, 66 tons total capacity.

FOOD INDUSTRIES

THE NEWS OF • PRODUCTION • ENGINEERING • DISTRIBUTION

Established 1928—McGraw-Hill Publishing Company, Inc.
Volume 6 Number 9

New York, September, 1934 . . . Laurence V. Burton, Editor

Indispensable Prerequisites for Economic Planning

NO SENSIBLE PERSON opposes the general happy objective of economic planning, but every thinking person of mature experience in this thing called life is gravely doubtful of its ultimate achievement.

● As long as the Secretary of Agriculture and the Under-Secretary of Agriculture go about the country calling for more economic planning, it is necessary to direct attention to the futility of this form of attack on our national problems.

● Successful economic planning calls for two definite prerequisites or it is not planning; it is only hopeful wishing — and a messy job at that.

● First, we must know what we are planning for. To say that we are planning for the "more abundant life" is to take an extremely and an unwarrantedly narrow view. After eight years of reflection on this aspect of planning, we are forced to take the broader view that to plan for the lives of others we must know the purpose of life. And, in our humble opinion, nobody has the answer to this unknown or undisclosed purpose.

● There are many conjectures, but most of us, who are intellectually honest, admit we do not know what life is all about. All of us have learned, however, that when we try to impose our own concept of life on the other fellow, he is invariably made angry.

● And even if we did know all about the purpose of life, we could not plan successfully, unless we were in possession of the second prerequisite: control of all the forces which affect life. To try to plan without this omnipotent control is futility itself. Or, to direct our comments to the so-called economic planning of the A.A.A., the summer of 1934 has afforded a splendid example of what we mean. The plan of curtailment was made without any foreknowledge of what the weather would be. Indeed, such a knowledge is not available, as we all know. It now turns out that absence of any plan would have been as good, if not a whole lot better than the A.A.A. plans. We now witness the unhappy spectacle of the Secretary of Agriculture informing the nation that its diet must be changed somewhat, and a large sector of the population becoming very resentful, if not wrathy, that A.A.A.'s experiment in production control did not—could not — take account of the unforeseen drought.

● Anything worthy of the name "economic planning" must be for a definitely known purpose and in full control of all forces. Successive attempts to plan our national economy will lead to successive efforts to control—not the forces of nature, for they are uncontrollable—but to control the lives and activities, even the utterances, of men. It is this effort that leads to dictatorship.

● Let the A.A.A., therefore, confine its activities to those where it can know what it is doing. Let it play the rôle of Joseph. Let it buy up land, if need be. But let it avoid any more excursions into the realm of the unknown and uncontrollable on a national scale with taxpayers' money.

AS IT LOOKS TO US

Short Cut to New Deal

If it is not too hot to do a bit of intensive thinking, you might exercise your brain on this one: A business man of our acquaintance says that every alleged objective of the New Deal can be attained by a very simple expedient.

Prevent all lending and borrowing of money, forever, says he, and you will quickly attain the apparent goal now sought by much more circuitous methods.

It sounds simple. In fact, much too simple. But how does it appeal to you?

How Does One Profiteer? . . .

Current invectives against profiteering hand us a laugh. How little practical knowledge of business is found in high places in Washington!

Will someone tell us how to profiteer in perishables? Or how to profiteer in non-perishables which compete directly with perishables?

The law of supply and demand still operates, despite the denials of its very existence only a year ago.

All Should Learn From Canners' Troubles

Canners are being subjected to unfair criticism. They are charged with opposing official recommendations for progress in labeling. The facts are quite different from the common belief or charge.

Inexperienced reformers in Washington, led by the ebullient Frederick C. Howe, are demanding that the quality grade show on the labels of everything that is packaged. Every time he speaks or writes, the Consumers' Counsel exhibits his complete ignorance of practical affairs. But, like all reformers, he has a large following, and he is assumed to be impartial. His opponents, therefore, are said to be "obstructionists." It is even common among those who look to him for information or leadership to hear the words "food trust" used in describing our industry.

Through what we believe to be a wholly unscrupulous proceeding, the canners had imposed on them the requirement that they take steps toward labeling to show quality grades of product. The canners have accepted, in better grace than the order deserved, this responsibiiity. They are sincerely working on the problem, but they know the inherent difficulties. The really experienced career men of the Department of Agriculture also know the serious problems that are involved.

Progress toward more informative labels is important. It will help the industry as much as the public. The progress should be on a sound basis, and the canning industry should not be charged with reactionary policy because it wants to move forward sanely, not in unconsidered madness, as the New Deal leadership in Washington seems to ask.

Elsewhere in this issue many of the phases of this problem are discussed in a staff article by Mr. McBride. That article touches on only a few of the important phases of the subject. More should be said; more will be said in the future Issues of FOOD INDUSTRIES. We invite the comment of our readers on any phase of this important subject. All food industries should learn from the problems which at the moment most plague the canners.

Greaseless . . .

If your plant is bothered by dripping grease from overhead conveyor chains or bearings on very hot days there is a remedy that is worth investigating. It is now possible to obtain equipment of the type made from a special alloy, so hard that it will not evidence any wear on friction surfaces even if there is no separating film of oil or grease.

Naturally, more power is needed if there is no oil, but the use of annoying dripping lubricants can be avoided if it is highly desirable.

Will Meat Packing Shift Southward? . . .

A train of thought, started by government drought cattle purchases and the movement of the animals to Southern States, leads to the question of the future of the meat-packing industry. Ordinarily a primary processing industry slowly follows the migration of its raw-material supply. Witness the shifts of the flour-milling industry in the past sixty years.

Will the packing industry expand in the South and contract in the North? The answer appears to depend on how well the Southern farmers take hold of their drought-sent opportunity. But we are skeptical of the outcome.

Putting thousands of cold-country cattle into subtropical swamps is not the right way to maintain herds. Neither is the generally current Southern grazing allowance of three or four acres to the head a sound practice. It should be fifteen acres to the head in the Piedmont regions. Unless the white farmers dig into the problem in a big way there will be no shift.

Appeal to the Profit Side

So many have sought our aid in securing jobs during the last four years that we feel we have become almost professional listeners to troubles. The average man out of a job has not the slightest idea of how to go about getting a new one, and, 99 times out of 100, his approach is on the expense side rather than on the profit side. He puts it up to the prospective employer to find the money with which to pay him, as well as to find some work for him to do. A clever sales approach to such a problem reverses the procedure. The candidate tells the prospective employer what he proposes to do for him and how much money he expects to make for him by doing it.

One man of our acquaintance has been quite successful in securing new connections, although he has been forced to make two changes during the present depression. His method is very simple in principle. He writes a letter on a piece of fine paper about 7x9 inches. The letter consists of only three paragraphs. Those paragraphs, however, represent many hours of study and planning.

The first paragraph deals briefly with his training and experience.

The next paragraph deals with exactly what he proposes to do for the prospective employer in order to make money for him. It is a most carefully worked-out analysis of the other fellow's business and states exactly where the candidate expects to fit into the organization, what he expects to accomplish there, and where the money is coming from to pay for his efforts, as well as make a profit for the employer.

The third paragraph is a request for an interview. The whole letter is a model of simplicity and condensation. Usually he writes only ten letters to a carefully selected list, and so far has received four or five requests for an interview.

Naturally, such a method can be employed only by a man of some experience who knows something about the kind of business he hopes to serve. To turn down a man who apparently is able to show the prospective employer where he can make money is exceedingly difficult.

The only trick is to figure out the profit appeal.

The Elderly Employee . . .

One of the tragic outcomes that we can expect from some of the impending social legislation will be the fate of the elderly employee if, and when, industrial pension plans are imposed by the government. All too often the most benign plans result in hardships to the very person they were meant to benefit.

And so, let us consider the elderly employee on his own merits. Unfortunately, there are a few plant superintendents who seem to be obsessed with the idea that only young people should be employed around a factory. And almost invariably it will be found that the person harboring such a belief is himself a rather youthful person. In the past, we have encountered a few of these ourselves, and it is our conviction that at about the time when legislative proposals may become hazardous for the job of the elderly employee, these youthful superintendents will have reached elderly years themselves. Possibly the chickens may come home to roost.

Speaking from our own experience, we would prefer to run a plant that had a few old timers around. A liberal sprinkling of grayheads among a bunch of kids will do more to prevent conversion of the plant into a playhouse at times than all of the most rigorous discipline that management can enforce. There are always jobs for the old timers, even though their backs may not be as strong as that of a vigorous youngster.

Evolution and the Food Manufacturer . . .

If the experience of one consulting food engineer of our acquaintance is any criterion, it is sometimes necessary to switch from one type of disinfectant to another and then back again to maintain successfully the efficiency of the destruction of bacteria. His experience in a milk-processing plant indicated that certain bacterial types seem to be capable of adapting themselves to the disinfecting method employed, one which was a favorite with the particular company. He recommended changing the disinfecting process to one that was markedly different in its principle for a period of several days and then a return to the original process. After this was done the trouble disappeared.

Bacteria are living things and by evolution are capable of adapting themselves to their environment. Changing the environment suddenly catches them unawares.

Preserve Market . . .

Those who desire to enter the jam, jelly and preserve business should give thought to the statistics of consumption. In this country, the per capita use of these items is about 1½ lb. per year. In England, according to the best information we have available, the annual per capita consumption is about 12 lb.

American manufacturers visiting England often return home with great plans, but until the American dietary changes markedly there is no easily enlarged market.

Patent Rights . . .

Outright purchase of patent rights to a process is not without its dangers. So look before you leap.

In regular procedure one does not buy title to a piece of real estate, an automobile or personal property without a provision guaranteeing a clear title or a reasonable protection from other claimants. Titles to patent rights differ in that a purchaser is not certain what he has purchased until the validity of the patent has been tested in the courts. Also a patent grant is often an invitation to a series of infringement suits.

Purchase of patent rights on a license or a royalty basis, unless otherwise provided, at least compels the patentee to help defend the patent against infringement and possible invalidation.

Baby or Babied? . . .

There are tricks in all trades, but here is a new one. Baby carrots can be made out of large ones by cutting off the tips of the roots. Then the tips are put into a vegetable peeler and given a few whirls to round off the ends and edges of the cut surfaces.

Since the physiological age of the tips and of young carrots of the same size is approximately the same, there is no appreciable difference between them.

Heating vs. Ventilation

Industries which operate the year round should give some thought at this time of the year to the problem of heating and ventilation which they experience in the winter time. Last winter, it will be recalled, was an unusually cold winter in the East. The long-range forecast is for another such winter in 1934-35.

Plants in which wet manufacturing operations are carried on are frequently troubled with condensation on ceilings and walls in very cold weather. And sometimes the amount of fog which develops inside of the plant on a very cold day will make it dangerous to people walking around.

Dripping condensate coming from cold ceilings in the winter time may wet and contaminate products, as well as be most annoying. For this condition there are two possible remedies: One is to insulate the ceiling so heavily that the ceiling will not become cold. The other is to ventilate the moisture out of the room, so that it cannot reach the cold ceiling. An ideal solution of the problem involves a combination of both operations.

Although heating and ventilating usually are spoken of in the same breath, they are in reality two very distinct operations that should not be confused.

The services of experts in this field are well worth their cost, but be sure that you really get competent experts.

Developing *Informative Labels* Adequate to Show Quality of Products

Outstanding Problems of Labeling Demand Attention Today Particularly by the Canning Industry

By R. S. McBRIDE
Editorial Representative, Food Industries

LABELS should tell the ultimate customer more about the quality of the food in the container. Forward-looking executives recognize this. They are planning their company business accordingly.

This trend is likely to be accelerated by official compulsion if some Washingtonians have their way. These persons were instrumental in placing in the canners' code under N.R.A. a provision requiring a report from that industry within 90 days of the approval of the code which would lay a foundation for labels showing federal quality grades. That requirement was imposed by the President after the industry had finished its negotiations with N.R.A. officials.

Despite resentment as to the manner of imposition, the industry is attacking the problem in good spirit. The problems involved are not solved. But it is hoped that they are solvable both for the canning industry and for the other divisions of the food business which are likely to be confronted with the same problem shortly.

Why Standards?

Competition can be wholly fair only when facts are known as to the quality of the goods which compete. If Jones calls certain goods "fancy" which Smith says are only "standard" grade, there is no basis for determining competition until an agreement is reached on quality. Hence there is some real justification for the insistence by certain government officials on accelerating the trend toward quality standards.

Much confusion exists because some wish only a definition of goods that are substandard. Others believe that official definitions should be adopted for each commonly used grade of the canned foods trade. Controversy also exists as to whether, after grades or specifications are adopted, there should be a requirement that labels carry information as to the grade of the contents. Only on one point is there unanimous opinion: When anyone claims on a label that goods are of a given type, size, grade or quality, then such a claim must conform with the facts.

On the part of some there is urgent desire to go much further toward complete specifications, classification and label requirements. But on this point only reasonable progress should be expected. It is not possible to set up over night a thousand and one quality specifications and for the industry to prepare to meet them, no matter how good the intentions may be or how sincere and diligent the effort.

NET WEIGHT OF CONTENTS 1 LB. 4 OZ.
Libby's
WHOLE
Blood Red
Beets
Libby, McNeill & Libby, Chicago
PACKED AT Libby's MODEL VEGETABLE CANNERIES
GUARANTEED BY Libby, McNeill & Libby
MAIN OFFICE CHICAGO
NET WEIGHT OF CONTENTS 1 LB. 4 OZ.
Libby's
Blood Red
Beets
Whole
LIBBY'S VEGETABLES ARE SEALED IN THE PACKAGES WITHIN A FEW HOURS AFTER THE TIME THEY ARE GATHERED, THEREBY INSURING ALL OF THE FRESHNESS AND FLAVOR OF THE VEGETABLE. EVERY CARE IS EXERCISED TO INSURE THE HIGH QUALITY OF THE VEGETABLES IN THESE PACKAGES.

In considering these questions, the consumer angle, of course, is more or less dominant. But consumers are vague persons, hard to define, impossible to reach for a decision. Someone must, therefore, act on behalf of the consumer. Several schemes for securing such a deputy have been attempted, each with partial success. If N.R.A. accepts the recommendation of the special committee appointed under the canning industry code for study of standards, *the first steps to be taken will be a determination of consumer desires.* That is an important matter, though admittedly difficult, and no one yet knows just what procedure will be followed to determine consumer wishes even after N.R.A. approval of the idea is given.

The government is commonly a consumer spokesman. It is on this theory that the Food and Drug Law gives such sweeping authority to the Department of Agriculture. The amended bill S.2800, which did not receive approval in the last Congress, pressed that theory even farther. It assumed that the Secretary of Agriculture should be deputized on the part of the public to fix all standards. To many, however, that is an objectionable conclusion.

New Legislation Expected

When the food and drug legislation again comes up for action in Congress next winter, one of the outstanding problems will be that of fixing quality standards for foods. (It should be remembered that here we are not talking about drugs or cosmetics at all.) Many believe that such food standards should be fixed by the Secretary only for the purpose of eliminating substandard goods. Others think that a complete set of quality standards should be fixed for many commodities. In the judgment of this writer, a middle course is both logical and necessary.

Standards unquestionably should be fixed officially whenever requested by a majority of any given industry. A majority probably should be measured in terms of the number of producers rather than in terms of percentage of total quantity of goods produced. That will eliminate the charge of monopoly management for those industries where a few manufacturers produce the bulk of the output.

Substandard limitations also probably should be fixed for any goods where the Secretary finds *actual* public deception or public loss likely to occur without such requirement. That would mean merely an extension of the McNary-Mapes amendment provisions beyond the field of canned foods. But the Secretary should be expected to proceed in that direction conservatively and carefully, doing a thorough job as he goes. Experience thus far under the substandard label law shows how very difficult it is to reach any reasonable findings.

NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy Whole Red Beets
Libby, McNeill & Libby
NOTICE
LIBBY'S BEETS
are carefully selected whole red beets of unusually good color and flavor. They are steam cooked and sealed in this package within a few hours after they are gathered from the nearby gardens.
Ask your grocer for other Libby's Canned Foods: Meats, Milk, Salmon, Vegetables, Fruits, Jellies, Jams, Pickles, Condiments, Olives, etc.
Recipes and suggestions for serving Libby's 100 Foods will gladly be sent on request.
Libby, McNeill & Libby
CHICAGO
MADE IN U. S. A.
NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy Whole Red Beets
10 Count
RECIPES
BUTTERED BEETS
Heat Libby's Beets thoroughly. Drain and serve piping hot with butter and seasonings.
HARVARD BEETS
½ cup sugar
4 teaspoons cornstarch
½ cup mild vinegar
1 No. 2 can Libby's Beets
4 teaspoons butter
Mix sugar and cornstarch and add vinegar. Cook 5 minutes. Add Libby's Beets and cook 15 minutes. Butter and serve piping hot.
Amount—serves four.
VEGETABLE RING
2 cups mashed potatoes
1 No. 2 can Libby's Beets
1 No. 2 can Libby's Peas
2 tablespoons butter
Seasonings and garnishings
Heap mashed potatoes in center of serving plate and surround with hot Libby's Beets. Border with hot buttered peas and garnish with parsley and egg slices. Serve hot.
Amount—serves four.

HERE IS THE BEST WAY to Give the Consumer Complete Information

Libby, McNeill & Libby some time ago decided to go in for fully informative labeling. A committee of housewives were called on to help decide just what information should go on the label. Many conferences were required for a single product . . . Here are the results. At left is shown the old label. Above is shown the label which contains all the information asked for by the housewives.

Most important of all, it should be recognized that almost never are quality standards necessary to protect either public health or public safety. Hence the charge that "grave public necessity demands this" is almost invariably unjustified in the case of food standards.

Mere protection of purchasers' pocketbooks probably is not at the present time sufficient justification for compelling the general fixing of standards. There will be plenty to do for some years to come, even if we fix standards when only one of the above-named conditions is met.

Merchant Factors

Neither the canner nor the ultimate consumer decides many label questions. The wholesaler or chain-store buyer is more potent on those matters for many goods. Some such buyers refuse to handle goods which are labeled with quality grades except, of course, those which are substandard and hence labeled by law. They argue that they do not wish their customers

to get in the habit of buying by quality name. They wish them to buy their brand, which they say is, in itself, a determination of quality.

Thus far no effective method has been established to take account of this merchandising problem. The government must recognize it. The government probably must intervene. But, for the moment, canners can only hope that it will be solved, and satisfactorily.

Defining Quality

A standard, to be really useful, must be capable of accurate definition. Tests provided in the standards must be sufficiently precise to permit determination of compliance. And, finally, the standards must be such as to permit equitable, yet effective, court enforcement by seizure and, if necessary, by fine or other criminal penalty.

Whether intended as a definition of substandard quality or for definition of quality grades, the requirements fixed officially should be technically clear. To be fair and informative for the purchaser, there usually are five requirements to be met in regard to either canned fruits or canned vegetables. The standards and the labels, if they show standards, should indicate clearly for the information of the housewife-buyer as to these five things: The variety of material; the size or number of the contents; the color; the texture or hardness; and the quality of syrup for fruits, or brine for vegetables—if added brine is a significant characteristic. All of these characteristics are definable, measurable, enforcible. To the extent that labels show quality, they can be expected to conform so far with defined and standard practice.

The purchaser will also like to know about flavor. But, in general, definition of flavor is difficult or impossible, and probably the reputation of the manufacturer is a better guarantee than anything which one can write into specifications. It seems logical, therefore, that in the course of adopting canned-foods specifications, the five major characteristics named should be made the only basis of technical requirements. Under such a plan, a canner would depend for permanence of business on the *reputation* for fine flavor which his goods would have. The reputation and the name of the manufacturer thus would prevail here rather than any attempted flavor specifications.

Present trade designations which use the terms fancy, choice, standard, and the like, depend to a large degree on flavor for these classifications. This trade practice probably should be recognized more widely industrially and among distributors. But the fixing of official requirements therefor is difficult—if not impossible. Such grade designations are not susceptible of the type of test or proof that can readily be afforded in the case of the other characteristics above mentioned. Nevertheless, to the extent that these terms are used in the trade, they should conform with accepted practice, particularly that which the Bureau of Agricultural Economics is supervising at present.

Label Requirements

Practical experience shows that embossing a quality designation on the can itself is undesirable. Regrading—unfortunately most often *degrading*—occurs often enough so that an unchangeable mark on the can is undesirable. Therefore the quality designation should presumably be on the label, for a label can, if necessary, be amended. Or in rare instances it can be removed and replaced. In some cases perhaps this problem would be solved by not applying labels to goods until near to the time of shipment, so that if regrading should prove to be necessary on removal from warehouse stocks, this could be accomplished without loss. Of course, in a majority of canned foods, the labels must be applied in the original factory because the cases are not again opened until they reach the retailer.

Names to be used for the grades of canned foods should be selected with care. There are definite disadvantages to such a series of designations as 1, 2, 3, 4 or A, B, C, D. The housewife is a bit too proud to ask the store for Grade C peas or third grade peaches. Properly descriptive, simple designations would seem better if in the form of words, not mere numerals or letters.

• How Libby's handle their canned-pea labels to show exactly what the housewives said they wanted to know. The label is somewhat reduced in size in order to reproduce it on these pages. Below is the old label; at right, the new one. Note, however, that the old label is for Alaska peas, while the new one is for Sweets.

NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy Extra Sifted Early June Peas
Libby, McNeill & Libby
NOTICE
Libby's Peas are young and succulent, of uniform size and color. They represent the best of the season's crop and are sealed in the can a few hours after they are gathered, thus insuring their freshness and flavor.
Ask your grocer for other Libby's Canned Foods: Meats, Milk, Salmon, Vegetables, Fruits, Jellies, Jams, Pickles, Condiments, Olives, etc.
Watch the magazines for Libby's Advertising which contains recipes and news from the Libby Chefs.
Libby, McNeill & Libby
CHICAGO
DISTRIBUTORS
MADE IN U. S. A.
NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy Extra Sifted Early June Peas
RECIPES
Buttered or Creamed Peas
Libby's peas are delicious when heated, seasoned with butter, salt and pepper and served just as they are. If it is necessary to drain some of the liquid from them, do not throw it away but save it for cream sauce or soups. In serving creamed peas, this liquid should be mixed with the milk in making the sauce.
Peas in Potato Nests
Make nests of hot mashed potatoes. (A pastry bag is best for this purpose.) Brush lightly with egg yolk and brown in oven. Fill the nests with creamed or buttered peas.
Pea Salad
Drain 1 can of Libby's Peas and mix with ½ cup chopped stuffed olives and 1 small onion, chopped. Mix with French dressing and let stand for 1 hour. Arrange on lettuce and serve with mayonnaise.

There might be, just to choose an example, four grade designations. Of course, there could be more or fewer designations, according to the type of commodity considered. Under all ordinary circumstances, if there were these four classes, the bulk of the purchases of the housewife would be of one of the two middle grades. Relatively few would need or care to pay for the finest; and most housekeepers would leave the substandard goods for the boarding-house keeper or cheap restaurant.

Nevertheless, substandard goods as now classified are wholesome and, for many household purposes, quite satisfactory. For example, substandard peas with cloudy liquor are quite suitable for making pea soup. Too great a stigma should, therefore, not attach to this lowest grade, both to insure reasonable opportunity for marketing and to facilitate reasonable economy on the part of the purchaser.

A grave question arises as to whether a particular grade of peas should mean just the same thing year after year. There are many advantages in having such conditions prevail. There are some disadvantages.

Perhaps the weight of influence lies in favor of having each particular grade mean the same thing for any particular variety of canned foods constantly from year to year. If this were done, some years we would not have many highest-grade goods of some kinds packed. In fact, some territorial divisions might pack none of these and much of the substandard. That would be an embarrassment, admittedly; but the long-time advantage in bringing confidence among buyers might offset this difficulty.

In this consideration, it should be recognized that every year, for any important variety of goods, almost every district would pack substantial quantities of the two middle grades, assuming that there were four grades. Since most purchasers would buy these two grades most of the time, they would become conscious of the variation in the cost from season to season by noting the swings of prices up and down as there was a shortage or an abundance of the goods for which they had a particular preference. That probably is as it should be. It would permit most intelligent buying with the minimum of mental effort on the part of the buyers. And all of us well know that a minimum of mental effort will be exercised by the buyer in most retail transactions.

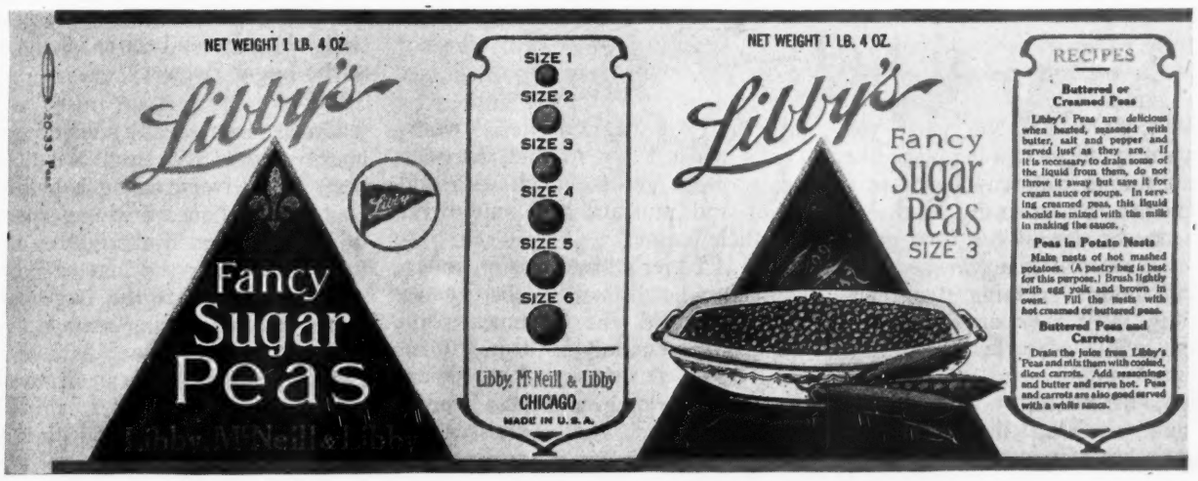
Waiting for Compulsion

Food manufacturers, particularly the canners, should not wait for compulsion. They should take full initiative in plans for fixing standards of this sort by the industry itself. Some of the wiser far-seeing executives recognize this. They know that the standards are going to be fixed sooner or later. They would like the industry to have the credit for doing the job. They believe the job will be better done by those who know the business than by those of academic background who may later be in charge if compulsion is to prevail. Merely on the score of selfishness, therefore, each canning group can well begin thinking *now* as to what standards it wishes.

The forward-looking attitude of some of the largest manufacturers and distributors is seen in Libby, McNeill & Libby's adoption of new labels for peas and beets and in the telegram of John A. Hartford, president of the Great Atlantic and Pacific Tea Co. to N.R.A. Division Administrator Armin W. Riley. In his telegram Mr. Hartford says: "Regard to the proposed gradings on canned-food labels, we wish to go on record favoring the plan, believing it advantageous to the consuming public. Will therefore proceed immediately to incorporate necessary changes on new labels to conform to various grade definitions laid down by the Department of Agriculture."

In its planning each industry must consider the relative importance to it of substandard limitations, definable grade limitations based on measurable qualities previously referred to, and those that are based on the trade names which so largely depend on flavor. Generalizations are not possible. Manufacturers of each commodity must settle these problems for themselves. And when settled, there will still remain the question as to how much of this information can be put on the label and how much must merely govern the merchandising and inspection problems.

Procedure in these matters pertaining to canned foods will be easily and simply defined through the work of the National Canners' Association. Other divisions of food manufacture not so ably led nor so fully organized are going to meet more difficulty in starting their standards plans. But the problems already described with reference to canned foods are not peculiar to the canning industry. They will be met in every other division of business, at least in some measure, though perhaps in many places in some modified form. The social trend of the times dictates forward-looking plans.


NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy
Sugar
Peas
SIZE 1
SIZE 2
SIZE 3
SIZE 4
SIZE 5
SIZE 6
Libby, McNeill & Libby
CHICAGO
MADE IN U.S.A.
NET WEIGHT 1 LB. 4 OZ.
Libby's
Fancy
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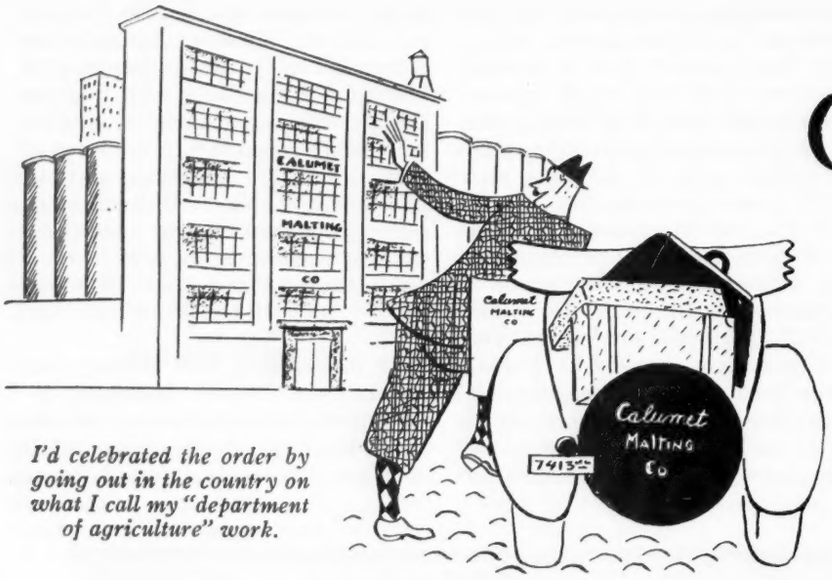
SIZE 3
RECIPES
Buttered or Creamed Peas
Libby's Peas are delicious when heated, seasoned with butter, salt and pepper and served just as they are. If it is necessary to drain some of the liquid from them, do not throw it away but save it for cream sauce or soups. In serving creamed peas, this liquid should be mixed with the milk in making the sauce.
Peas in Potato Nests
Make nests of hot mashed potatoes. (A pastry bag is best for this purpose.) Brush lightly with egg yolk and brown in oven. Fill the nests with hot creamed or buttered peas.
Buttered Peas and Carrots
Drain the juice from Libby's Peas and mix them with cooked, diced carrots. Add seasonings and butter and serve hot. Peas and carrots are also good served with a white sauce.

Green Beer



I'd celebrated the order by going out in the country on what I call my "department of agriculture" work.

IT'S ASTONISHING what you can worry about in a big place like the Calumet company here—provided you're the worrying kind. If there's one branch of the food game where the general manager needs to know all about everything, then malting is it, if my experience means anything. The grain elevator and the malt house could keep me busy all the time, just checking on raw materials and watching the processing. We have humidity and temperature control throughout the plant, of course, but when you work with living things successfully you have to give them constant attention.

That's why I'm in here nearly every Sunday, keeping an eye on operations. Cork and bottle barons can go on week-end parties, but I can't do it. And how some of these recently rejuvenated but still ramshackle country crossroads malt houses are getting by is a mystery to me.

What's more, the maltster can't avoid dipping into the beer business, whether he likes it or not. Take that argument we had last month with our best customer, the Lager Brewery, across the State. For a while it looked as if we were going to lose their business entirely, but we finally got them around to our way of thinking, even if it wasn't so easy.

That trouble started without any warning at all. We'd been supplying the Lager people for years, and the shipment they complained about was a post-repealer of 75,000 bu. I'd celebrated the order by going out in the country on what I call my "department of agriculture" work. That's when I try to find out why our growers get so much oats and wheat and mustard and sunflowers into their barley.

It was Lager's brew master, a Mr. Dunkel, who broke the bad news. He telephoned the Calumet plant while I was out talking to my farmers. Asserted that our consignment of new malt was giving them beer of a greenish hue. The beer tasted like ink. What was our idea in putting iron in the stuff we were sending them! Would the office notify me right away and how soon could they get their money back. That, especially their wanting money back, was about what the president of Calumet wired me. So I didn't accomplish much on that field trip, as you can well imagine. You'd like to hear how we handled that situation? It's an involved story, but if you've got time I'll give you the details.

Naturally, I telephoned the Lager plant at once. Their man Dunkel had a reputation for being a tough baby to get along with, and the conversation justified the reputation.

"It is iron in your malt dot is making our beer green," he asserted. "We expect you to take the whole lot back, and *we don't want any more of it!* Green beer is one thing we can't sell. We know, because we've tried it. Furthermore, if we want to color our beer, we won't do it with iron." He was sending me some of the green beer so I could judge for myself, and he wanted me to know that they had had this trouble before with our material and weren't taking any more chances with our product.

Dunkel was not inclined to be the least bit reasonable. The best I could do was to stall him off for a week. I told him I'd let him know about shipping back the malt, and that gave me a few days to learn something about green beer, especially about green beer as encountered at the Lager Brewery.

* * *

Green beer was something I'd merely heard of, and we'd never been accused of causing it before. I couldn't see how we were responsible this time, either. But, right or wrong, we were facing the loss of our best customer. And if the Lager people were really having trouble with Calumet malt, it wouldn't be long before we would hear from other breweries also.

You'll likely tell me we could get some idea where we stood from a few ash analyses. We could, and did. There wasn't any serious quantity of iron in the shipment, and we felt, besides, that the Lager consignment was equal to the best malt we had made in thirty years. The answer seemed to be elsewhere.

We might have told Dunkel that we stood behind our product, and asked him to check on his own operations. But that's not always the best policy in any business, least of all in ours. We've learned by experience that the brewer is inclined to blame the maltster as soon as anything goes wrong with the beer. He can't very well blame the hops, because he doesn't use enough to make the story plausible.

So I asked Bruce, our own chemist, to look into the matter of iron and green beer, with the idea that we might be able to put Dunkel on the right track and get him satisfied with our shipment. Well, the first thing we learned was that iron has small chance of getting into finished beer through brewing materials. In good brewing practice, everyone seems satisfied that 99 per cent of the iron

Caused THIS HEADACHE—

By HERMAN BERLE

in the raw materials remains in the spent hops, yeast and grain, or less than one per cent of the trifling quantity of iron goes into the finished product. And that's not enough iron to influence anybody's beer. We found out, too, that breweries use the iron explanation freely when the beer goes off color—frequently without justification. So while we could not say that Dunkel had no iron in his beer, we did feel safe in assuming that the color was not coming from the malt—not the way the Lager people alleged it did.

The week's grace gave Dunkel a chance to cool off some and another telephone call persuaded him to come over to see me. I didn't learn very much from the talk, but it looked as if there was something "phoney." Dunkel was telling only part of his story, I suspected, but what he was leaving out was more than I could figure. He declared that he had flushed out all the equipment in the entire Lager plant twice, and that the beer was still coming through green. Apart from that, the only thing he was sure about was that he couldn't use any more of our alleged ferrous malt at all.

* * *

The next move, obviously, was to do some detective work on Dunkel. I asked our man Bruce to work on that angle, and we soon had a line on Lager's inside operations. Bruce was acquainted with Heller, the Lager chemist, and that's where he started his under-cover work. He learned right away of trouble between Dunkel and Heller, and we began to suspect that the difficulty was more a matter of who wouldn't mesh than of what wouldn't mash. The brew master and the chemist had definitely fallen out. Heller, the chemist, had decided that the place couldn't hold both of them any longer and had quit cold. He came back here to see his family while he was getting out his lines for a new job. The green beer trouble must have come up right after that, because Heller had no recollection of recent complaints against Calumet malt.

With that much background, I got in touch with Heller on the telephone.

"Berle speaking," I announced. "Dunkel, the brew master over at the Lager company, has been in here with some of his grief. Know anything about it?"

Heller wasn't having any at first. Said that the Lager crowd and he had had a difference, and that he was definitely through—all washed up.

"Forget about that," I told him. "You are still working for them if you want to be, but they won't know a thing about it. Call around at my office this afternoon and it will be well worth your while."

Heller took the bait and we went up to the lab. and got down to business as soon as he came in.

"The Lager Brewery wishes to return 75,000 bu. of our malt," I said briefly. "What's more, they threaten to transfer their future business elsewhere. Dunkel's story is that their beer is coming through with a greenish color, and he asserts that iron in our malt is responsible. We have an idea that that's not the real explanation."

—But it wasn't due to the raw materials.

Heller was smiling by the time I had gotten that far, so I concluded we were on the right track.

"Calumet," I told him, "will pay you $400 cold cash if you can tell us what's gone wrong over there. That's $400 worth of revenge for you. How about it?"

Then I had the cashier make out a check while he was thinking it over. It didn't take Heller long to decide.

"I'm under no obligation to the Lager company, moral or otherwise," he said slowly. "And I have a pretty

"It must be the iron in your malt dot is making our beer green. We expect you to take the whole lot back and we don't want any more of it."

"Calumet will pay you $400 cold cash if you can tell us what's gone wrong over there. That's $400 worth of revenge for you."

good idea what their trouble is. Pay me."

Heller's explanation was logical enough. He gave us the science of the situation, and that's all the first-aid we wanted at the moment. "We fought about green beer for months at the Lager Brewery," he began. "Dunkel probably is right about the color being due to iron, but he's away off the track in his explanation of how the metal gets into the product. The malt doesn't have much to do with it. It's a case of iron and tannin—the tannin comes from hops—and that's what accounts for both the color and the ink flavor. You seldom encounter the difficulty with beers of high alcoholic content. Weak beers usually are the ones that give you that kind of trouble."

Heller obviously knew what he was talking about, and the metallic idea enlightened me right away when I recalled that Dunkel had said something about having continued trouble after he had flushed out his plant. But I decided to find out what else Heller knew before quizzing him about Lager's flushing operations.

"One way to handle the problem is to reduce the tannin content of the beer," the chemist went on. "You can cut down on the percentage of hops, or you can extract the hops with cold water. But I wouldn't suggest that to Dunkel, because I don't think he'd take it seriously. He's blaming malt. The same goes for another standard remedy for the disease. It seems that weak beers are defective in some protective constituent; probably free acid. If you raise the acidity in thin beer there shouldn't be any tannin trouble. But the Lager outfit won't take kindly to that proposal, either.

"Again, some breweries get in trouble when they decarbonate their water by boiling it, which makes the water more aggressive toward any iron it may come in contact with. But I'm sure that's not Dunkel's difficulty."

Then I asked Heller what he knew about the flushing angle. "Dunkel says he was still in difficulty after flushing out the plant," I reported. "Is that the answer?"

"Precisely," Heller replied. "The other time we had trouble with green beer was when some supersalesman sold Dunkel a load of patent flushing compound called, as I recall it, Sanite. That stuff took all the scale out of our pipes and equipment, and we had clean, bare iron exposed in half a dozen different places. The result was green beer.

"The yeast press is one of the vulnerable spots. If you get bare iron exposed there, you'll get it into the barm ale, and the result will likely be trouble. Sometimes the coolers are responsible. Besides that, fermented wort may also dissolve iron.

"My guess," Heller continued, "is that Dunkel is trying to cover up his unwise purchase of Sanite. He probably suspects what really went wrong. If you can persuade him to stick to Clenex for cleaning up, I don't think there will be any more trouble. But you'll have a hard time getting Dunkel to admit his mistake. That's your problem. He won't listen to me. That's why I quit. Life is too short to waste it quarreling with Dunkel."

Deciding to question Dunkel about his flushing operations anyway, I drove over to his plant. It's only a couple of hours away. I asked him about Sanite and Clenex, but he wasn't inclined to listen. Not at first. Not until I suggested that he try somebody else's malt at our expense, and then he started to weaken. He had to. If he didn't, he was sunk right there.

"If you think you can make good beer out of Calumet malt you can come over and try it," he finally conceded.

That was a chance I grabbed right away.

"We'll send our chemist, Bruce, over with some men tomorrow morning," I promised. "We'll work together, and I think you will still be able to use Calumet malt."

* * *

The boys went over on schedule with the idea of operating the brewery in the usual way but with definite instructions to lay off cleaning and flushing operations of all kinds. I told them, in addition, to cart away any stray bags of Sanite they saw around.

Well, it wasn't so very long before the beer was coming through as good as ever. Once we had the lines and equipment scaled up again—protected with a film of some organic acid salt, no doubt—the iron trouble disappeared and there was no more green beer. By the time we had reached that point, Dunkel forgot all about his demands for money back. We didn't argue with him about flushing compounds either. We just let him figure that out by himself.

Later on, I learned that the Lager people ordered a new supply of Clenex, the flushing solution which was effective without being too effective. And there haven't been any complaints from that quarter since. Calumet and Lager will be doing business for a long time yet.

We don't make beer, but I put Heller on our payroll just the same. It's good insurance for us. And I think we used our heads on that green-beer business. Sometimes, there are faster ways of shooting trouble than with test tubes.

Egg Packer Borrows From Baker

Adapts Bread Wrapper to Eggs

By S. A. LEWIS
Los Angeles, Calif.

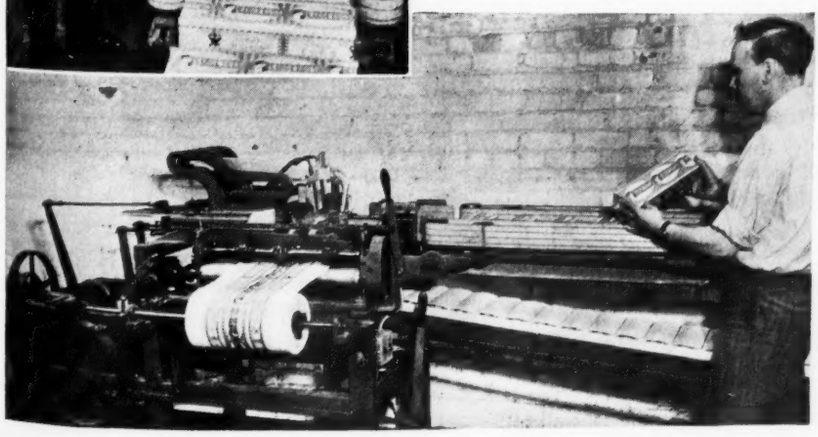
WITH the aid of a converted bread - wrapping machine, Whitehead Bros., Los Angeles and Riverside, Calif., are packing eggs in highly protective and decorative cartons. These cartons are wrapped in attractively printed waxed paper which is heat-sealed to make it moisture- and air-resistant.

Wrapped at less than half a cent additional cost, the packages perform two valuable functions which the packer feels offset many times the expense of wrapping. As may be seen from the accompanying illustrations, these packages embody eye-appeal and connote quality. And, as would be expected, they carry eggs to the consumer in this extremely hot, dry region in a fresher condition than do the unwrapped cartons. A third advantage might be claimed in that the waxed paper gives additional protection against breakage.

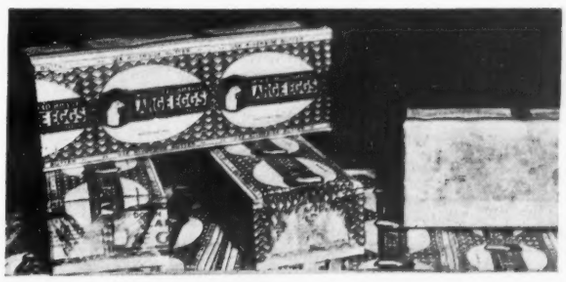
Packed in the unwrapped, printed carton of the type generally used, eggs more rapidly lose moisture and carbon dioxide, with consequent deterioration in freshness. Loss of moisture is evidenced in two ways: a decrease in weight and an increase in the size of the air cell. But the cartons wrapped on the converted bread-wrapping machine seal the eggs against the rapid escape of moisture as well as against CO_2 loss. Candling tests made over a period of a week with eggs from the same lot proved that those in the moisture-proof, airtight cartons survived extreme heat better than those in the unwrapped packages.

The machine used by Whitehead Bros. will wrap cartons at the rate of 1,200 to 1,500 an hour. The cartons feed into the machine on a continuous belt, passing through the wrapping operation automatically. The feed belt carries each carton along until it reaches an elevator that lifts it onto a hot plate. Before the box is carried upward, however, the waxed printed wrapping paper, fed from a roll at the side of the machine, is cut to the required size. Then as the elevator rises, the wrapper envelops the pack. Two spades, or grippers, fastened to arms on the machine, descend to make the first downward fold of the wrapper. Another arm thrusts the box forward, and the paper extending over the ends of the carton is forced through an arrangement of slots to form the end folds. The cartons then pass between two heating elements, one on each side of the conveyor, and over a bottom hot-plate. The heat melts the wax sufficiently to close the folds tightly and in a trim, squared style. The sealed cartons then travel a short distance between two belts which keep the folds under pressure until the wax has cooled.

To convert a bread-wrapping machine to handle egg cartons requires but few changes, the extent of revamping depending on the type of the machine. On the machines used by Whitehead Bros., the spades were made larger, the grippers were adjusted to fit the size of the box and a guide was inserted under the elevator so that the carton would not waver. Then, heating elements on the side were extended somewhat along the bottom edges to insure a square fold, and a scorer had to be installed on the under side of the side folder.



Two views of the converted bread-wrapping machine used by Whitehead Bros. to package their eggs. Only a few changes were needed to adapt the machine to its new job. It will wrap 1,200 to 1,500 cartons an hour.



Cartons of eggs which have been wrapped in heat-sealed waxed paper at the plant of Whitehead Bros. Not only do the packages have display value but they keep the eggs fresh longer. Note the trim sealed folds at the ends and bottoms of the cartons.

This new method of packaging eggs has enabled Whitehead Bros. to maintain their volume of business in a declining market and to build up consumer good-will through a product sold in a better condition. To retailers, the new egg package means additional sales appeal and a display value. All of this at very little additional cost to the packer.

Saves a Million Dollars a Year

In Truck Transportation Costs

Kroger Collapsible Store Vestibule

Permits night deliveries to stores when closed—May be used by other companies on royalty basis

DELIVERIES of food products during the daylight hours when the stores are open have always been a serious problem because of the relatively high distribution costs during these hours. This has been due to the impossibility of so routing the trucks that the major portion of the runs are not made during the congested traffic periods of the day which reduce average truck running speeds. Increased costs have resulted also from delays in unloading when the deliveries are made while the clerks are waiting on customers in the stores.

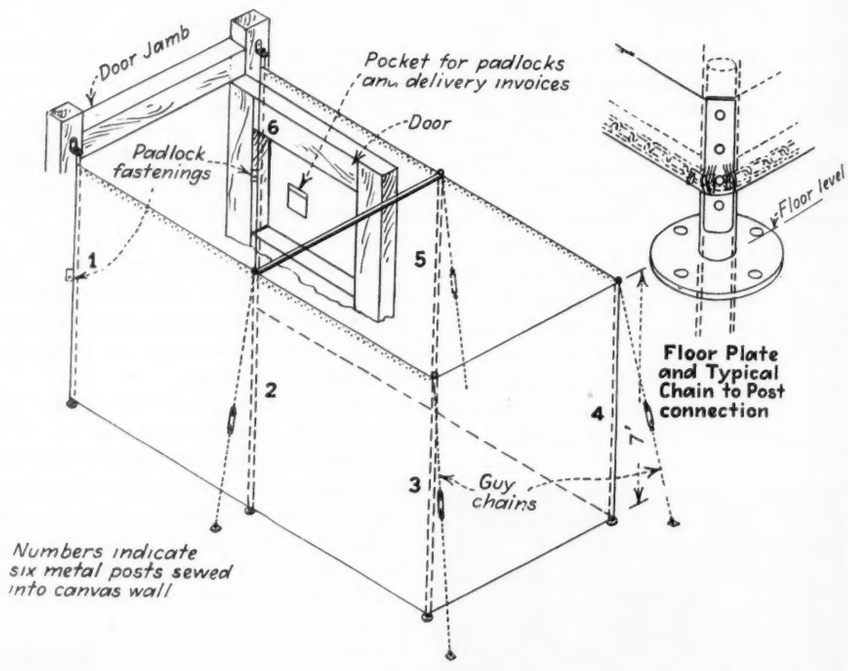
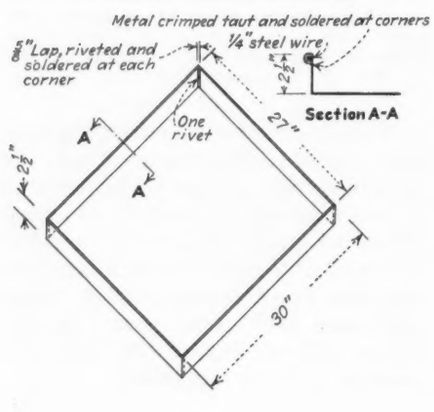


Fig. 1—Perspective view of the Kroger collapsible store vestibule which permits of night deliveries. Note the position of the vestibule relative to the front store door. The vestibule consists of a 7-ft. canvas wall supported by six metal posts held vertical by guy chains.

Fig. 2—Details of the galvanized-iron pan. At least one of these is placed inside the vestibule to catch the water drip from milk and produce delivered with ice to keep them cool.



Such conditions existed with the Kroger Grocery & Baking Co., with headquarters in Cincinnati, Ohio, when C. O. Sherrill, vice-president, took over the warehousing and transportation departments of the company early in 1931.

One of the first factors that appeared essential was to be able to operate the Kroger motor transportation equipment 24 hours a day. It was necessary to devise some easy means of placing merchandise in the stores when the stores were closed. With that thought in mind, the collapsible vestibule shown on these two pages was designed. Since its adoption the savings that have been made in the motor transportation costs of the Kroger company due to this vestibule cannot be definitely determined. However, the total of these savings has amounted to more than one million dollars a year between 1931 and 1933 and the vestibules had much, but by no means all, to do with these savings.

Aside from the remarkable savings made by the Kroger company through the use of the vestibule, its description is of much importance to readers of FOOD INDUSTRIES because, by arrangement with the Kroger company on a royalty basis, other organizations throughout the country may obtain the privilege of using these vestibules.

As shown in the accompanying drawing (Fig. 1) and pictures of the vestibule in use (Figs. 3 and 4), it

consists of a rectangular, boxlike arrangement made up of six metal posts erected vertically in suitable plates in the floor to support a continuous vertical canvas wall on both sides and the inner end of the inclosure. The latter has no roof or ceiling and its outer end toward the store door is open. The vertical canvas wall is 7 ft. high.

Vestibule Set Up Inside Store

After the store is closed, the temporary vestibule is set up inward from the front door in what would be the center aisle of the store when open. The two foremost metal posts are held in floor plates at the bottom, inserted through holes in angle-iron lugs fastened to the sides of the door casing at the top, and fastened to the door casings in the center by means of two padlocks inserted through staples in the door casing which are slipped into metal hasps on the posts. The remaining four posts are set up in similar floor plates laid flush with the floor and are held in place by means of guy chains hooked into rings flush with the floor. The posts are permanently sewed into the canvas at their proper relative positions. The canvas is strengthened against tearing by means of chains sewed into the top and bottom edges and fastened to the posts, at the proper heights above the floor.

The vestibule is set up and taken down as a unit. Looking toward the store door, the first post set up is the left-hand one attached to the door casing; next the left center post and the rear end post; then the rear right post and, next to last, the right center post. The guy chains are then placed and tightened up. To complete the setting-up process, the manager steps from the store proper to the inside of the vestibule and sets the right-hand post to the door casing. This post and the left door post are locked in place by two padlocks inserted through the staples on the door casings and the corresponding hasps on the posts. These padlocks are carried in a pocket on the wall canvas when not in use.

Driver Has Key to Store Door

The space inside the vestibule is thus definitely separated from the rest of the store. The manager retains the key to the two duplicate padlocks and leaves the store from inside the vestibule, locking the front store door behind him. The vestibule is then ready to have goods placed inside of it.

The truck driver is furnished with keys to the front doors of the stores to which he delivers goods. Arriving at a store, he unloads his deliveries and places the goods inside the vestibule; puts the invoices for the goods left in the pocket on the vestibule wall; locks the store door behind him; and departs for his next stop. He does not stack the goods closer than 6 in. from the walls of the vestibule. This protects the vestibule, keeps the canvas clean, and allows room for ventilation. At least one metal pan (Fig. 2) is placed inside the vestibule to catch the water drip from milk or produce delivered with ice to keep it cool.

Permits Night Deliveries

The use of the vestibule permits the truck equipment to be used 24 hours a day. Deliveries may be made during the daylight hours to the outlying stores where traffic congestion is not a problem. Night deliveries may be made at a minimum expense to city stores in the congested traffic areas.

As the delivered goods are left inside the store and protected by the locked front door, there is no possibility of theft, such as is often the case when early morning deliveries

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Fig. 3—Interior of the vestibule, as seen from open front door of store.

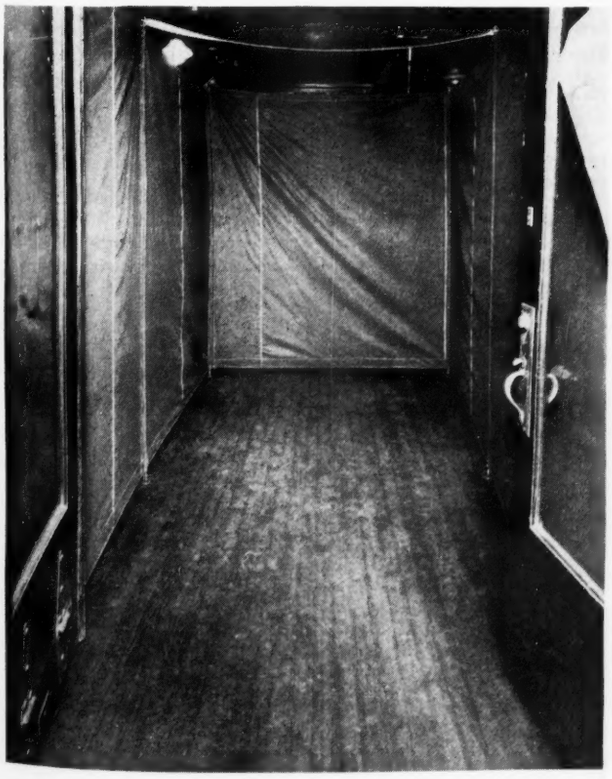

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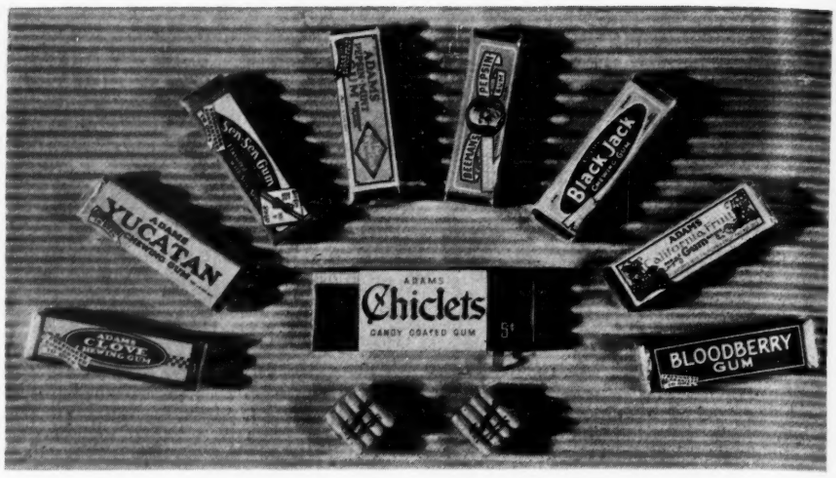
Fig. 4—Rear of the vestibule as seen from the inside of the store.

Group of products packaged in printed transparent cellulose by American Chicle Co., Long Island City, N. Y. The complete designs for the chewing-gum wrappers, done in a variety of attractive colors, are printed on the underneath side of the cellulose. While the Chiclets box has an unprinted wrapper, it carries a cellulose "rip cord" with printed directions. None of these packages would be practical without photo-electrically controlled wrapping machines.



By FRANK K. LAWLER
Editorial Department
Food Industries

Photo-electric Packaging

Electric Eye Makes Printed Transparent Cellulose a Practical, Inexpensive Wrapping Material

PHOTO-ELECTRICALLY controlled wrapping machinery has placed printed transparent cellulose on the list of practical wrapping materials for the food manufacturer. Equipment is available which, handling the material in rolls, will wrap at high speed such small objects as a package of chewing gum, registering the printing to within $\frac{1}{32}$ in. of the exact spot where it ought to fall —a variation so slight as to pass unnoticed without close examination.

And this equipment is quite efficient, as months of operation has shown in the plants of Planters Nut & Chocolate Co., Wilbur-Suchard Chocolate Co., Inc., and American Chicle Co. Elaborating upon the experience of the makers of "Adams" gums reveals an interesting packaging story.

Something over three years ago American Chicle first applied printed transparent cellulose, fed continuously from rolls, to "Tempters," a new line of candy-coated gum. But the printing on this wrapping was a trick job, the brand name being at such close intervals that no matter how much the variation in position, it would appear at least once on the face of the package. Meeting success with this product, the company extended the transparent-cellulose wrapping to packages of stick gum. But this time the wrapping was not printed, being applied over the printed paper band that held the five sticks together. While this gave the packages a luster and an added attractiveness, reflection of light at certain angles obscured the printing on the paper band underneath. This difficulty was overcome by printing everything on the cellulose, including the colors, and doing away with the paper band entirely. And that's where the photo-electrically controlled wrapping machine came to the rescue. Without it the new wrapper could not have been registered properly. With it—well, the company has installed sixteen of the machines and is wrapping ten different products with them.

Made to Open Easily

But that is not the complete story. As every cigarette smoker will swear —and we mean swear—heat-sealed transparent cellulose wrappers should be equipped with some mechanism equivalent to a can opener. American Chicle Co. appreciates this. Around one end of the Chiclets box, and protruding from under the wrapper so that it may be grasped with the fingers, is a cellulose ribbon which serves to tear open the wrapper. This ribbon is applied from a continuous roll, and the printed directions which it carries for opening the package are registered photo-electrically.

Packages of gum also carry a "rip cord," but this is applied in a different manner. A tape is stuck to the inside of the foil wrapper with wax, and the foil is cut off at one corner to permit the tape to protrude. Then, the cellulose wrapping is applied in such a way that the tape sticks out where the consumer can get hold of the end.

In redesigning its packages for the new style wrappers, American Chicle has also capitalized upon the added protection afforded by the transparent cellulose. Printed on the side of each pack of gum and featured in advertising are the words "Triple Guard Pack." This triple protection comes from the wax-paper wrapper on the individual sticks, the sealed foil around the group of five, and the transparent cellulose over all.

While the chicle company considers it of small import in its particular case, the protection against bootlegging provided by the printed cellulose wrappers means much to many manufacturers. Because of the limited number of sources of this wrapping material, it can be kept out of the hands of disreputable firms.

That wrapping machines with electric-eye control are practical is borne out by their performance in the American Chicle plant. The master mechanic there will tell you that this apparatus causes very little worry from the standpoint of operation and maintenance. The only attention required is to adjust the circuit for sen-

sitivity at the beginning of the day and then perhaps at intervals if conditions (such as variation in the intensity of light in the room) necessitate. Adjustment merely involves turning the knob on a rheostat.

The photo-electric control used by this gum company is of a type that minimizes trouble. It consists of a light source, a photo-electric cell amplifying tube, thyratron tube, timer and solenoid, and it operates from the a.c. light circuit of the plant. Current generated by the photo-cell passes through the amplifier and to the thyratron tube. The grid of the thyratron ordinarily is kept at a negative potential, a condition which prevents current from flowing through its plate circuit. But when the photo-cell current is imposed upon it, the grid potential changes to positive and the plate circuit "closes," remaining closed until opened by a breaker operating in synchronism with the machine. Thus, the tube acts as a locking relay or contactor. When the plate circuit of the thyratron closes, it passes current sufficiently heavy to operate a solenoid, which, in turn, actuates a trip to set the correcting mechanism into motion. Power to make the adjustment comes from the wrapping machine itself, through gears. With this arrangement there is no need for intermediate relays.

An essential adjunct to the photo-electric control used by American Chicle is a timer which opens the circuit and prevents the control from operating except when the actuating color spot on the wrapper is at the point of passing between the light source and the cell. An equivalent of this is a slotted disk which rotates between the light source and the cell and flashes the light at the proper instant. With this scanning disk, however, a timer also must be used, for it is needed to break the circuit and allow the thyratron to resume control.

A special device has been found necessary on the machine that packages "Tempters," because of the high-speed wrapper feed and the small color spot. This comprises a metal slide with a slit that admits light to the photo-cell and that is geared to move in the direction of the wrapper to increase the time during which the light acts on the cell. If the wrapper is in register, the color spot will cover the slit and the control will not operate. But if the wrapper be out register, light will get through and effect adjustment.

All the wrapping machines in the American Chicle plant have one-way correction only. This means that the feed is adjusted either fast or slow on each machine so that it will always come out of register in the same direction and need be adjusted only in the opposite direction to correct it. That is why only one thyratron tube is needed. Two-way adjustment sometimes is used in photo-electric controls, but this requires a tube for each direction of correction and a selector switch connected to the cutter rolls to select the proper tube according to whether the wrapper is ahead or behind the point where it should be. One-way correction is satisfactory in a great many cases, and is preferred because of its simplicity.

The type of correcting mechanism used to execute the message of the photo-electric eye differs for different machines and applications and is a problem for the machine designer. With the one-way correction used on the gum-wrapping machines, the correcting mechanism merely moves the paper in the proper direction by a certain amount by means of a ratchet-and-pawl booster or retarder, or by a simple mechanical speed variator which momentarily changes the ratio between the speed of the feeding rolls and the speed of the machine. With two-way correction, more elaborate schemes sometimes are used, especi-

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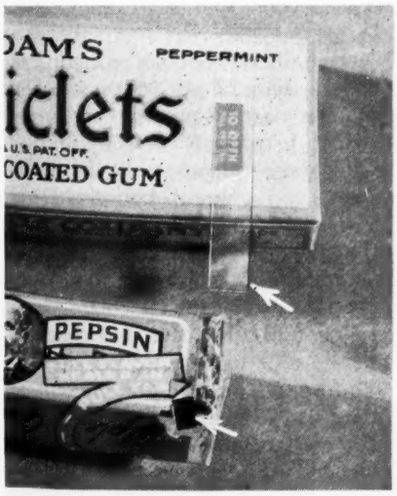
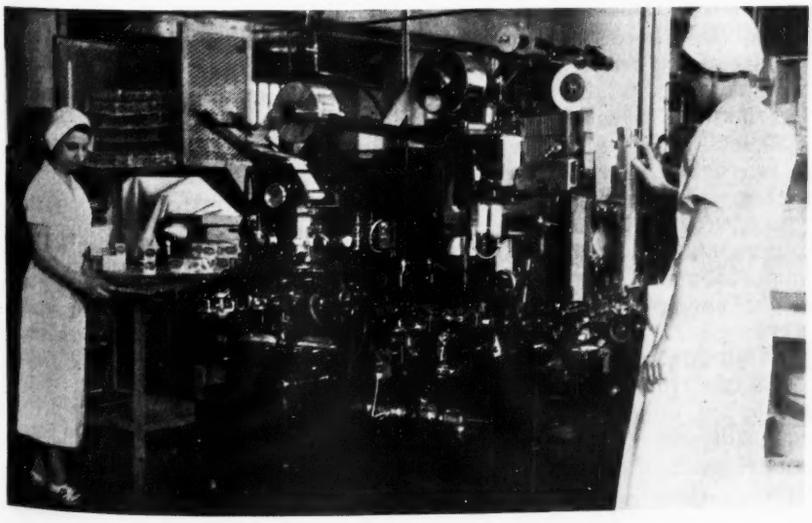
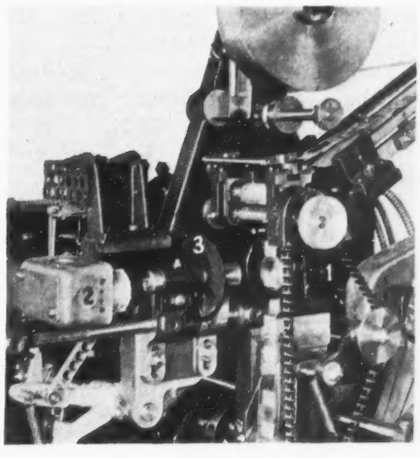


Two kinds of "rip cords" for cellulose-wrapped packages. The box has a cellulose ribbon around it, this being underneath the wrapper and having one end sticking out. The gum package has a piece of tape stuck to the inside of the foil wrapper and protruding from under both the foil and the cellulose outside wrapper.



One of sixteen photo-electrically controlled machines which package chewing gum at American Chicle plant. Using transparent cellulose fed from rolls, these machines operate at high speed and automatically register the design on the wrapper with an error of not more than 1/32 in.



Closeup of a machine showing (1) the photo-cell (2) the light source and (3) the slotted disk that rotates in synchronism with the wrapper feed to shut off the light except at the moment the registering color spot is at the point of passing the photo-cell. This is a typical form of control.

There is a COCOA *for Every Use*

Why choose your cocoa solely on a price basis when an expertly selected one is needed to give your product individuality?

By BENJAMIN J. ZENLEA
Chief Chemist
Rockwood & Co.
Brooklyn, N. Y.

COCOA is chocolate liquor from which a portion of its fat content has been removed. The resulting product is prepared for the commercial market by the press cake being broken up into relatively small particles or pulverized and screened or bolted according to its fat content and the purpose for which it is to be used.

From a more specific viewpoint, a chocolate liquor becomes a cocoa when its fat content is less than 50 per cent. But, generally speaking, cocoa, as known to the trade, is a fine powder containing from 7½ to 32 per cent cocoa fat, or cocoa butter, as it is more widely known.

There are many kinds of cocoas, but they can be separated into two main classifications: (a) natural-process cocoas and (b) Dutch process cocoas.

Natural process cocoas are cocoas to which no alkalis or "Dutching agents" have been added during manufacture.

Dutch process cocoas are those which have been treated with an alkali solution such as potassium carbonate, ammonium bicarbonate, or sodium carbonate or bicarbonate. In some instances the cleaned nibs are actually boiled in an alkali solution as strong as 3 per cent based on the weight of the nibs. In commercial practice 2 per cent of alkali is more commonly used. To complete the treatment, the water is evaporated and the Dutched nibs are dried in a roaster. The nibs are milled, the liquor is pressed, and the cocoa cake ground and refined in the same manner as is the practice in the manufacture of natural-process cocoas.

Dutched cocoas are darker in color, less acid, and less bitter than natural cocoas, which usually have a pH of 5.2 to 6.0; Dutched cocoas have a pH of 6.0 to 7.5. Only in cases of extreme "Dutching" will the cocoas be definitely alkaline and have a slight "soapy" taste. Such cocoas have a pH of 6.8 to 7.5. Dutched cocoas are more economical to use because with them the desired color is obtained in the product with smaller quantities and for certain purposes can be replaced by natural cocoas.

The various types of cocoas can be described as follows:

1. **Semi-cocoas,** cocoa nuggets, cocoa crumbles, and cocoa chips are prepared by crumbling press cake or by mixing chocolate liquor with a quantity of cocoa to reduce the fat. In the latter case, the product is molded into thin cakes and then broken into small chips. Because of the high fat content, 32 to 45 per cent, and their chocolate-like flavor, they are used extensively for fine-quality ice cream and for fancy icings; no attempt is made to produce such cocoas in powder form.

2. **High-quality cocoas** usually contain from 25 to 35 per cent cocoa butter. They are made from select quality cocoa beans of the better type, and are carefully blended. These cocoas are either "Dutched," "natural," or "semi-Dutched." They are used for fancy ice cream, for the preparation of beverages, for icing, as a filler between layers of cakes, and for making "chocolate" syrups. Higher fat content would be objectionable because of the difficulty there would be in preparing them in powder form and in distributing their particles uniformly through a prepared mix. If the fat content were made lower, there would be a loss in the aromatic constituents of the cocoas.

3. **Breakfast cocoas** contain not less than 22 per cent cocoa butter. The natural-process and semi-Dutched breakfast cocoas are used for beverage purposes, syrup preparations, and general household use. The Dutched type breakfast cocoas find use in chocolate biscuits and crackers, devil-food cakes, and homemade candy, such as chocolate fudge.

History of the cocoa and chocolate industry tells us that 22 per cent became the traditional fat content of "breakfast" cocoas in Europe because higher fat cocoas were considered too "fulsome" and because equipment for producing a lower fat cocoa was not known. Since then this definition has been perpetuated by regulations of food and drug administrations. By coincidence, cocoas of 22 to 25 per cent fat content prove to be those best suited for general all-around purposes. Their fat content is low enough to make their preparation in fine powder form relatively easy and their blending and handling less troublesome than the higher fat cocoas. Yet their fat content is great enough to make them pleasing in appearance, to give them a good aroma, and to produce a characteristic chocolate-like color.

4. **Semi-dry cocoas** usually contain 15 to 18 per cent fat. The natural and semi-Dutched cocoas are

Although stressed by the buyers and too often by the users of cocoas, percentage of cocoa butter content, color and degree of fineness are not all the essential qualities to look for in a cocoa. Between certain minimum and maximum limits these specifications can be identical whether the cocoa be of high, medium, or low quality.

● Almost anyone of a practical turn of mind can regulate the time and intensity of pressing to give a press cake having the desired fat content; can choose the temperature range of roasting, grinding and screening or bolting that will give a cocoa of a light, medium, or relatively dark color; and can select screens or bolting cloths that will give the desired fineness.

● Flavor and aroma, the true indexes to the quality of a cocoa, can be had at their best only when expert care has been taken in the selecting and blending of the beans; in the manner and time of roasting, cooling, and hulling; the conditions under which the germ-and-shell-free cocoa-bean meats or "nibs" are milled into liquor form and stored for pressing, and the temperatures at which the liquor is pressed and the cake is stored preparatory to being pulverized and put into particle or extremely fine powder form.

● Low-grade beans will never produce high quality cocoa; nor will the finest of beans unless they are handled by those who know how to guard and develop the superior qualities inherent in them.

used for malted-milk mixtures, cocoa-milk drinks, chocolate-flavored desserts, chocolate pies and chocolate-flavored syrups. The percentage of fat they contain is quite satisfactory for use in the products mentioned unless perchance the cocoa-milk drink is to be bottled, sterilized and kept refrigerated. In that case a lower fat cocoa is wanted to avoid the formation of an objectionable fat ring in the neck of the bottle. If a cocoa lower in fat than 15 to 18 per cent be used in food preparations, the finished product has a too pronounced cocoa flavor. If one having a higher fat content be used, there is difficulty in keeping the fat uniformly distributed throughout the mixture. This is especially true in the case of dessert powders and other dry mixes in which cocoa is a main ingredient.

5. Dry cocoas contain 10 to 12 per cent fat and are used for miscellaneous purposes. Natural-process cocoa is used for milk drinks, cocoa and skim-milk mixtures, sweet cocoas, and icings. Dutch process cocoa is used for cocoa extracts, baking, and devil-food mixtures. These cocoas are the most common on the market, and are used where low cost is sought.

6. Extra dry cocoas contain between 8 and 9 per cent cocoa butter. They are used for thin syrups and other mixtures where low fat content is desired.

Designation of the various types of cocoas according to blends of beans used or to degree of roast is not practicable because each cocoa manufacturer has his own blend and his own method of processing for each type of cocoa.

7. Very dry cocoas contain from $6\frac{1}{2}$ to $7\frac{3}{4}$ per cent fat. This fat content is about the limit for cocoas made by pressing the fat from the chocolate liquor by hydraulic presses. They are used for making substitute or imitation chocolate coatings through the incorporation of sugar and another fat, such as coconut oil. They are desired because of their low fat content, as there is difficulty in blending cocoa butter and coconut oil. This cocoa is used also as a dusting powder in pan-coated confectionery and may be used similarly to dry the surface of candy centers to be enrober coated.

8. Solvent-extracted cocoas, or defatted cocoas, contain from 0.5 to 3.0 per cent fat. They usually are

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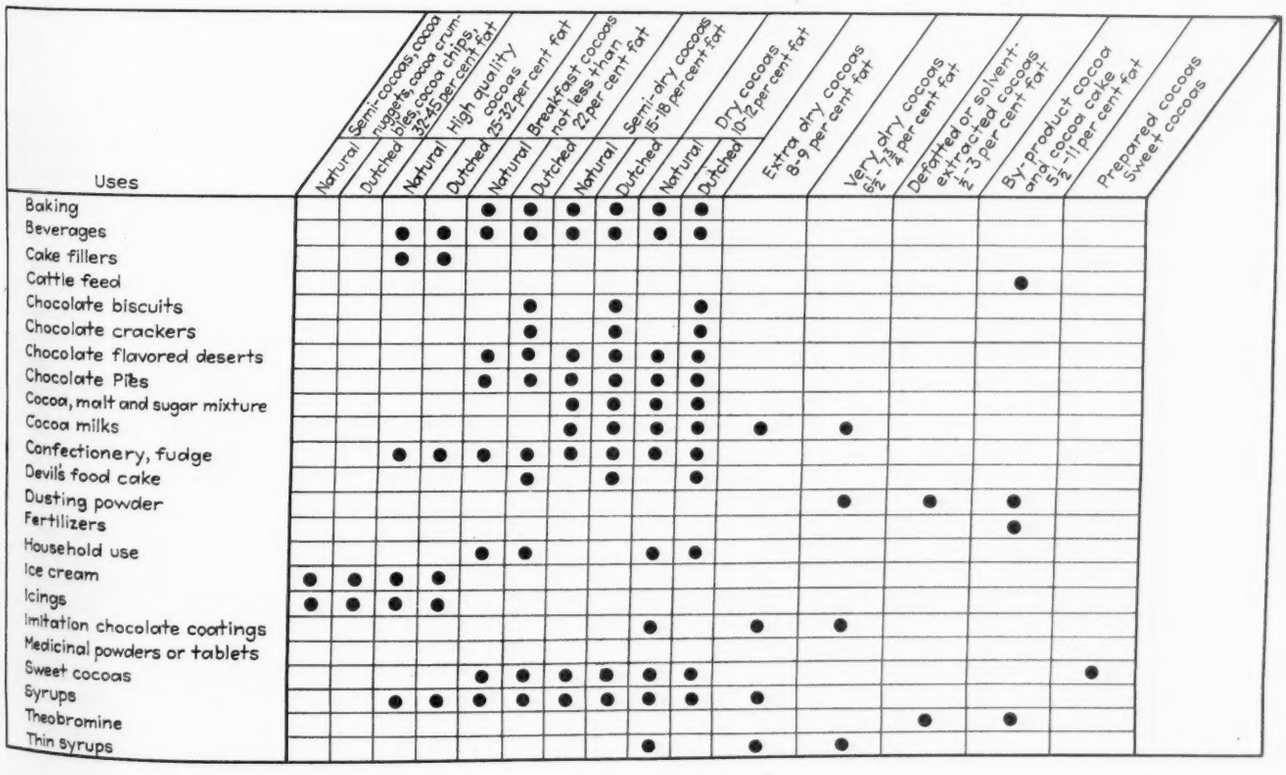
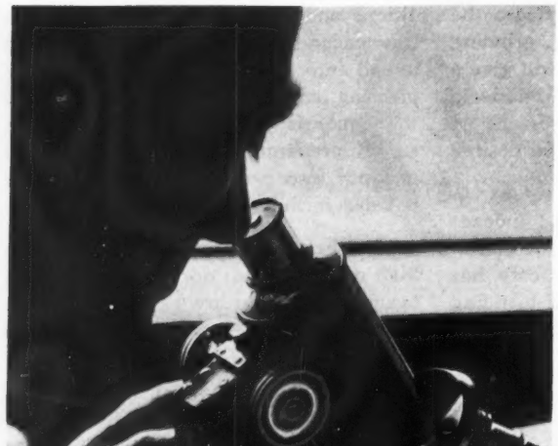




What the Microscope Can Tell About Butter

Quick Way to Predict Its Keeping Power

By J. A. NELSON
Head of Dairy Industries
Montana State College
Bozeman, Mont.

KEEPING QUALITY of butter in storage can be predicted with a high degree of accuracy from the number and appearance of certain rod-shaped bacteria in a specimen of the butter under a microscope. And from the general picture of the number of organizations and their morphologic types it is also possible to get a general idea as to whether the butter was made from low- or high-grade cream.

The following six points summarize what can be told about butter by the microscope:

1 A general picture of the kinds of microorganisms in butter can be secured easily and quickly.

2 The number of microorganisms per cubic centimeter of butter can be estimated.

3 The microscope can be used to help determine whether the deterioration of butter is primarily bacteriologic or chemical.

4 The keeping quality of butter can be predicted.

5 The growth of microorganisms in butter can be studied.

6 A general idea can be secured as to the quality of the cream used in making a given lot of butter.

TWO ECONOMIC forces have recently led to more active bacteriological investigations of butter. These are the market demand for butter of better quality and the increased demand for unsalted butter, in which microorganisms can grow more readily than in salted butter.

Mere determination of the numbers of microorganisms in butter has been very useful in connection with investigations of butter deterioration, but the method has its limitations because it does not give any idea as to the presence of types of microorganisms which are capable of causing deterioration. Improved microscopic methods and increased use of the microscope in making bacterial counts in milk have led to the adaptation of direct microscopic technique for the examination of butter and the evaluation of its keeping qualities.

Method of Examination

A method of examining butter microscopically was devised by the writer. A representative sample of butter is melted by heating to 113 deg. F. (45 deg. C.). Ten cubic centimeters of the well-mixed sample is transferred to a separatory funnel by means of a pipette and centrifuged for one minute. The serum (water, salt and curd) which collects at the bottom of the separatory funnel is drawn off into a short, clean test tube. Experiments show that more than 99.5 per cent of the organisms are forced down into the serum. After thoroughly mixing, 0.01 c.c. is transferred to a clean, dry glass slide by means of a Breed pipette; about three drops of sterile, sedimented skim milk added; and the mixture spread over an 8 sq.cm. area (2 cm. wide and 4 cm. long) by means of a sterile needle bent at right angles. After the slide is thoroughly air dried, it is stained for five minutes with methylene blue by Newman's one-solution technique. After air drying, the slide is again stained in an aqueous solution of methylene blue for about ten seconds, rinsed in cold water and allowed to dry. This additional staining seems to make the organisms show up more plainly. The fields are then examined under the oil-immersion objective of the microscope.

If an estimate of the total count per cubic centimeter of butter is needed, six to twelve fields are counted. The average number of bacteria found per field is multiplied by eight, which is the number of square centimeters in the preparation. This product is multiplied by the microscope factor, and this product divided by nine will give the number of organisms per cubic centimeter of butter.

Numbers Alone Meaningless

When considering organisms in butter, total numbers do not mean much unless the types present are taken into consideration. Butter may have a count of many millions of organisms per cubic centimeter, but the type present may be the one that is commonly found in butter cultures. A starter culture is commonly added to cream before churning, and many organisms of the common type are carried over into the butter.

Such organisms of the butter-culture type have nothing to do with the deterioration of butter, despite the fact that some people believe that culture butter does not keep as well in storage as non-culture butter.

Round, ball-shaped organisms, known as micrococci, very commonly found in butter, have no apparent relationship to butter deterioration. They seem to develop in butter without any appreciable damage to the quality of the product. In the case of butter deterioration, the slender rod-shaped organisms seem to be the chief offenders. If these slender rods appear in clumps and are well stained, indicating that they are alive, the butter is almost sure to show deterioration if held at room temperature (70 deg. F.) for from five to seven days. The keeping quality of the butter can be predicted from the appearance of these rods.

Accuracy of Prediction

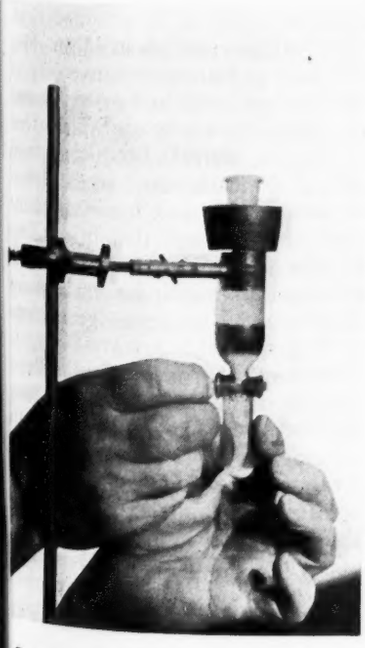
We have conducted experiments on predicting the keeping quality of (1) commercial salted butter, (2) commercial unsalted butter, and (3) samples of butter made for exhibition purposes. Microscopic slides were made of the butter and the keeping quality of the butter was predicted very largely on the number and appearance of the slender rods present. The butter was scored and criticized for flavor and aroma by experienced judges on the basis of the 45 points given to flavor on the standard butter score card. Then the samples were placed in 2-oz. glass-stoppered, sterile bottles and held at room temperature (70 deg. F.) for seven days.

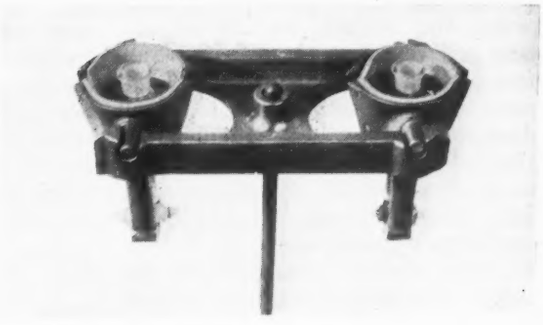
After the holding period, the samples were again scored and criticized for flavor by the same judges. Of the 303 samples of commercial salted butter studied, the keeping qualities of 292 (96.4 per cent) were predicted correctly. Of the 93 samples of unsalted butter studied, 74 (79.6 per cent), and of the 53 samples of exhibition butter, 45 (84.9 per cent) were predicted correctly. These experiments showed that it is possible to predict the keeping quality of butter with a high degree of accuracy by microscopic observation of the slides made from it.

It is possible to determine whether or not the cause of deterioration of butter is of chemical or bacteriological origin. If the deteriorated butter shows only a few organisms, or at least no appreciable number of rods, the deterioration probably was caused by chemical changes. If, on the other hand, the organisms, especially the slender rods, increased in large numbers, then, no doubt, bacterial action was the cause of the deterioration.

Sometimes it is desirable to study the growth of microorganisms in butter. This can be done by making a slide, counting the organisms, and then making more slides at successive intervals and observing the increase in numbers. In the case of butter, culture organisms can be observed very readily in this way, especially in unsalted butter. Growth of butter-culture organisms is very evident because they form long chains of cells.

By observing the general picture of the number and morphologic types of organisms in butter, it is possible to get a general idea as to whether the butter was made from low- or high-grade cream. If low-grade cream was used, the slide will show poorly stained, partly autolyzed cells, while if high-grade cream was used the organisms will be stained more deeply and there will not be much evidence of autolysis.





ABOVE — Melting the sample of butter.

LEFT — Removing the serum from the separatory funnel.

RIGHT — Assembled funnels, funnel supports and centrifuge head supported by a ring stand.

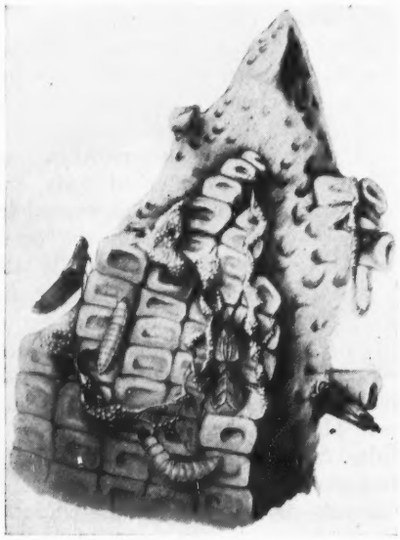
Photos—Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa

Fumigation

Is a Preferred Method of Storage MOTH CONTROL

By HARRY STINER
Los Angeles, Calif.

Heat treatment, cold storage and good housekeeping are helpful aids in combating food storage pests.



Indian meal moth and its larval form infesting an ear of corn.

STORAGE MOTHS may, in general, be considered as "unsavory" pests. The adults are always harmless and to a large extent are inoffensive. The larval (worm) stages of all types—they eat continuously—are not only destructive but in their devastations leave large quantities of frass and tangled webbing behind, which, particularly in moist articles, form an infallible breeding ground for other insects and for microorganisms.

Fortunately, there are not a large number of different types infesting the average food plant as storage pests; and perhaps equally important in the matter of control is the fact that a single species (Indian meal moth) generally is more abundant than all the others combined. On the other hand, while this species—as well as some of the others—may have a rather broad choice of foodstuffs, they usually are quite definite in their choice. Consequently the moths are seldom seen in a plant where these certain foods are not handled.

Control methods for storage moths in general are similar. The wide variety of foodstuffs they attack, however, will not always permit of this freedom. The moths in all stages respond to the various fumigants, fumigant sprays, heat treatment, cold storage, repellents and cleanliness. However, only the cereals and cereal products can be treated with the entire list. Stored dried fruits, nuts, chocolates, candies and fresh vegetables—such as potatoes—should not, with few exceptions, be submitted to sufficient heat to be effectively rid of the pests. Such materials as nuts, chocolates or other oily products are often affected by some of the fumigating gases. Also they should not be sprayed with the fumigant sprays unless in tight containers (See text with formulas Nos. 8 and 9*).

Perhaps one of the most useless forms of undirected moth control is the trapping of adult moths by lights or in attractive solutions. Shortly after the female moth leaves her cocoon she begins to lay eggs. If the food material is satisfactory she will often complete the job before leaving. The males, however, fly about at will and always form a large percentage of those caught in traps.

When the materials are held in ordinary storage and, as is often the case, the storeroom cannot be economically fumigated as a whole, either of the two fumigant sprays mentioned in No. 8 of formulas* will often prove temporarily effective if applied thoroughly and frequently. These sprays should not be expected to take the place of regular fumigation, however, as a sufficient concentration cannot be obtained to force penetration of the material.

Storage-moth control is no different in principle from that for any other general storage insects. Parasites kill many of them and many others die naturally, but the great majority of any infestation must be killed by artificial means. The most efficient method of all, however, is prevention—consistent inspection and examination of supplies when received and during their storage period.

Among the most destructive of these storage moths are the Indian meal moth, the Mediterranean flour moth, the chocolate or cocoa-bean moth, the fig moth, the meal snout moth, and the potato tuber moth.

The Indian meal moth is about $\frac{1}{4}$ in. long when at rest. It usually is a pale gray on its front half and bronze on the rear half, is delicate, eats nothing, and is seldom active except at night or in subdued light.

The larvae are about $\frac{3}{4}$ in. long when full grown; vary in colors of white, yellow, pink and greenish; and have small brown heads. They feed on cereals, cereal products, dried fruits, nut meats, many seeds, chocolate and candy, and leave an abundance of frass entagled in a silken web wherever they go. Breeding is continuous in warm, favorable places and as many as seven generations may be produced in a year.

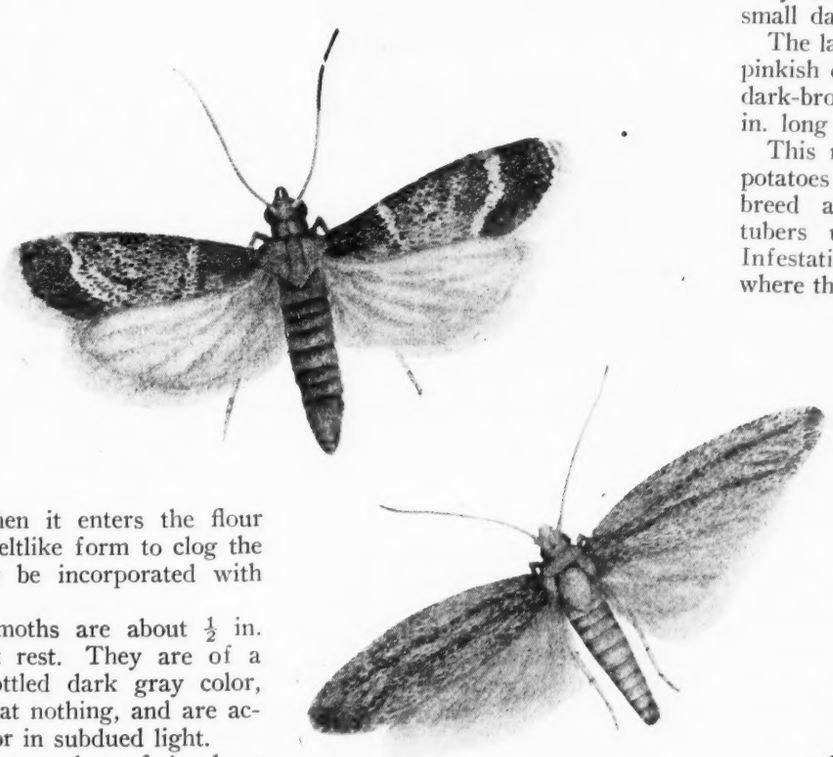
The moth form of the Mediterranean flour insect is about $\frac{1}{2}$ in. long when at rest. It is dark gray with black zigzag cross-markings, is also delicate, eats nothing, and is seldom active except at night or in subdued light.

The larvae are about $\frac{13}{16}$ in. long when full grown, are whitish, marked with small black specks, and have

*FOOD INDUSTRIES, Vol. 6, p. 160; April, 1934.

small, brown heads. The worms feed on cereals, cereal products, nut meats, seeds, chocolate and candy, and leave even more frass and web behind them than does the Indian meal moth. Breeding also is continuous in warm, favorable places and there may be produced as many as six or seven generations in a year.

The depredations of this moth are most noticeable in flour-handling equipment. Here the larvae crawl about, leaving a silken thread as they go, which in time collects flour dust in all corners and parts not directly swept by the moving flour. Beneath and through this mass the full-grown larvae spin their cocoons and the flour beetles breed in safety. In time, this web mass accumulates until it either falls of its own weight or is dislodged, when it enters the flour stream in a feltlike form to clog the machinery or be incorporated with the product.



Chocolate or cocoa bean moths that cause much damage during wharf and warehouse storage of cocoa beans particularly.

Mediterranean flour moth (below).

Chocolate moths are about $\frac{1}{2}$ in. long when at rest. They are of a somewhat mottled dark gray color, are delicate, eat nothing, and are active at night or in subdued light.

The larvae are about $\frac{3}{4}$ in. long when full grown and are white or yellowish, with little brown heads. They feed on cereals, cereal products, walnuts, dried fruits, chocolate, cocoa beans and coffee, and, like the Indian meal moth, leave a frass-filled web behind them. They also breed continuously in warm, favorable places and produce several generations a year.

The food and habits of this moth are similar to the Indian meal moth except that the preference of foods, if any, would seem to be indicated by their names. This same vague reason may have some relation to their relative prevalence in the average food plant.

Fig moths—often spoken of as the Mediterranean fig moths—are about $\frac{1}{2}$ in. long when at rest. They are of a yellowish gray color, are delicate, eat nothing, and are most active in the early mornings and evenings.

The larvae are about $\frac{13}{16}$ in. long when full grown, are yellowish to pink in color, marked with rows of black specks, and have small brown heads.

This moth is primarily a pest of figs, although is not averse to attacking other dried fruits in storage. The larvae work within loose fruits, but burrow about indiscriminately in tightly packed materials. While their depredations and frass are plainly evident wherever the worms have been, there usually is a notable absence of silken web as compared to other moths of this type. Breeding is more or less continuous in warm, favorable places and several generations may be produced each year.

Until recently the only known sources of this pest were from the fig sections of Europe and Asia. It is now a recognized pest, however, in the fig sections of our Western coast.

The meal snout moth is about $\frac{9}{16}$ in. long when at rest. It is dark brown in front and back with a broad light-brown band trimmed with white across its center, is delicate, eats nothing and prefers dark places.

The larvae are about 1 in. long when full grown and are grayish white, with black heads. They live mostly within a silken cocoon covered with meal and dust, which they create themselves and from one end of which they feed.

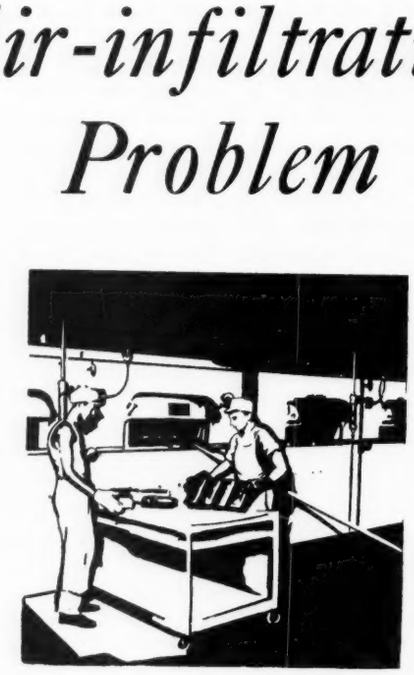
This moth is primarily a pest of grains and seeds stored in cool, damp places over long periods. The larvae often are found in large numbers in sacked materials, binding the seeds together with their silken webs and cutting holes through the bags. Breeding is relatively continuous, but is somewhat retarded in dry, warm places.

The adult potato tuber moth is about $\frac{3}{8}$ in. long when at rest, has a silvery body and gray wings spotted with small dark specks.

The larvae vary in a white, yellow, pinkish or greenish color and have a dark-brown head. They are about $\frac{7}{16}$ in. long when full grown.

This moth is primarily a pest of potatoes in a food plant. They will breed almost continuously in the tubers under favorable conditions. Infestation usually begins in the field, where the moths also attack tomatoes, tobacco, and many other plants of a similar nature. Their presence usually is plainly evident in potatoes, therefore rigid inspection at the receiving door will often prevent a considerable loss later. The larvae mine indiscriminately through the tubers, but the surface generally appears sunken and discolored above their burrows.

Vapor-sealed Bake Oven Solves Air-infiltration Problem



By G. R. FENNEMA
Baldwin, N. Y.

● In previous articles, appearing in the June and July issues of Food Industries, Mr. Fennema has discussed some of the details of bake-oven design which greatly affect the conditions inside the baking chamber and the quality of the baked product.

● Of even greater importance is the relationship between the structural details of the ovens and the cost of the fuel required to operate them to get the best results.

● In this article is illustrated and discussed a traveling-hearth oven which is designed to go even the best peel ovens one better in maintaining uniform conditions in the baking chamber, in keeping fuel costs low, and in preventing escape of oven vapors and heat into the bake shop.

IN PREVIOUS ARTICLES we have discussed the detrimental effects of air infiltration upon baked products. The question now arises as to how we may minimize the air leakage into a continuous bake oven to a point where the evils of air infiltration are almost entirely eliminated.

The sketch shown as Fig. 1 indicates the path of a single lap-tray oven consisting of a horizontal baking chamber with a dependent leg at one end provided with a door opening located below the horizontal baking chamber. A device also is provided within the oven to remove from the baking chamber a certain part of the vapors driven off during baking or injected into the oven. It is obvious that horizontal, through drafts cannot exist in this type of oven.

Volume of Air Varies

It must also be noted that the following conditions exist inside and outside the oven. The gaseous fluid or atmosphere in the baking chamber has a volume of about 38.75 cu.ft. per pound. The air in the bake shop has a volume of about 13.6 cu.ft. per pound. Conditions in the dependent leg depend upon the amount of air movement set up; but the air may reach a temperature corresponding to a volume of 20 to 25 cu.ft. per pound. Thus we see that the gaseous fluid in the oven weighs about one-third as much as the air in the shop and about one-half as much as the air in the dependent leg.

To maintain the foregoing conditions it is necessary that both the baking chamber and the leg extending down to the door opening be made fully vaportight.

As we have used the analogy between an oven and a room in previous discussions of different types of ovens, let us now refer to Fig. 2. This sketch represents a steamtight room constructed on the second floor of a building with a stair well and stairs leading from the first floor to the room. The stairway represents the dependent leg on the oven. The approach to the stairway is a Dutch door with the top half open and provided with a grating having a free area of 33 per cent. This grating represents the resistance which would be offered by the trays in the dependent leg of the oven.

The room is provided with steam coils capable of raising the temperature of the room to 250 deg. F. The walls, floor and ceiling are covered with a zinc lining soldered vaportight. In the room is an open water tank with an electric heater capable of boiling the water, which will boil at 212 deg. F. under atmospheric pressure.

Effect of Heat

Let us first operate the heating system under the following conditions and observe what takes place within the room. The heating coils are turned on full, and no water is in the tank.

As the air is heated it expands and part of the air is forced down the trap or stairway. When the room temperature has reached 250 deg. F., the air in the room has a volume of 17.36 cu.ft. per pound. Assuming zero weather, the outside air has a volume of 11.58 cu.ft. per pound. It is obvious, under these conditions, that the outside air cannot disturb the air inside the room.

The air in the stair well is heated to a certain temperature by radiation and convection, and a small amount of circulation is set up within the

stair well. Outside of the fact that some heat is removed by the upper part of the stair well, the room itself is not disturbed; no cold outside air can enter the room.

Assume that after the room has reached a temperature of 250 deg. F. the tank is filled with water at 90 deg. F., the tank heater being left "off." The air in the room, being very dry, containing about 85 grains of moisture per pound of dry air, starts to absorb the moisture from the water bath. As the latent heat of vaporization is taken from the surrounding air, the temperature of the air in the room will drop very sharply at first. As the air becomes more and more saturated and heated, it also becomes lighter, occupies more space and drives a certain amount of partly saturated air down through the steam-seal trap or stair well. When the temperature has reached 212 deg. F., the vapor will have driven all the air from the room. As the temperature rises above 212 deg. F., the vapor becomes superheated, and as the evaporation progresses, part of the superheated vapor escapes through the steam-seal trap.

If at this stage the electric tank heater is turned "on" and the water in the tank is rapidly boiled, the temperature in the room will again drop, assuming that the capacity of the heating system is such that it cannot supply the amount of heat required to keep the steam superheated at 250 deg. F.

In this case the superheated steam at 250 deg. F., has a volume of 28.4 cu.ft. per pound, as compared with a volume of 17.36 cu.ft. per pound of dry air heated to 250 deg. F. The outside air at 0 deg. F. has a volume of 11.58 cu.ft. per pound. Again we see that the outside air cannot enter the room.

All the foregoing conditions of temperature and volume refer to elevations at about sea level. Cooking and baking at medium and high altitudes present another problem with different temperatures and volumes.

In the baking process, conditions similar to the above exist also in the oven. For instance, to prevent the product from coming in contact with dry air in the oven, the baker places some pans of water on the conveyor ahead of the bread. This will solve the problem in a bake oven having a perfect steam seal, but it is merely a gesture in any other type of continuous bake oven, because of the tremendous amount of dry, heated, infiltered air traveling through these ovens.

In former articles it has been shown that the program followed in a hearth oven is as follows: Steam is admitted into the oven for the first baking period to lower the oven temperature and maintain an elastic dough surface. The steam is then turned "off," the oven temperaure is allowed to rise, and the baking is finished in a superheated gaseous fluid generated by the products in the process of baking.

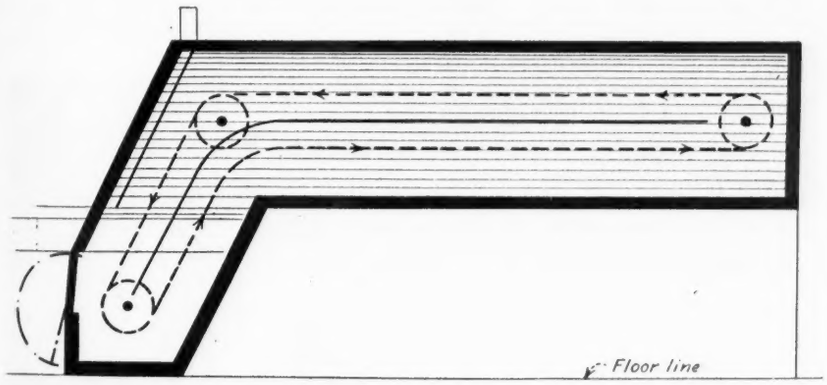
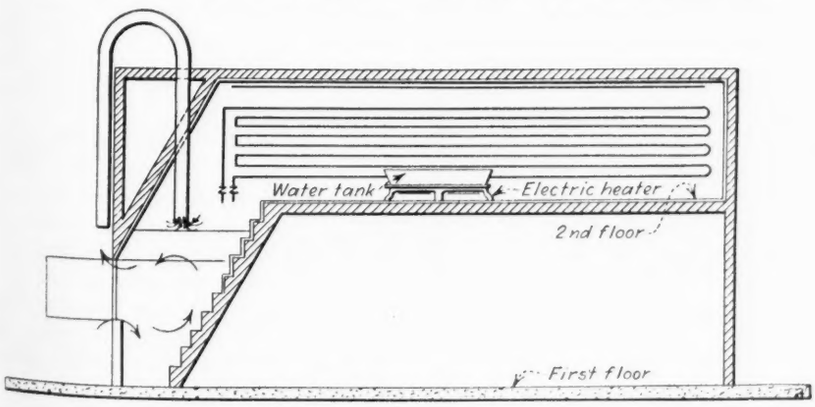


Fig. 1.—Path of horizontal single-lap-tray oven with a dependent leg at one end and a door opening below the baking chamber. Note similarity to construction of room below.

Fig. 2.—A stair well with an opening below the floor level of a vapor-tight second-floor room prevents the setting up of air currents in the room when there are changes in temperature and humidity of the room atmosphere.



Important Details in Design

The following points are very important in the design of a continuous bake oven which is expected to perform as well as a good steamtight hearth oven. In fact, a properly designed continuous oven can even better the performance of a good hearth oven, because of the elimination of the temporary drying effect encountered while loading and unloading a hearth oven.

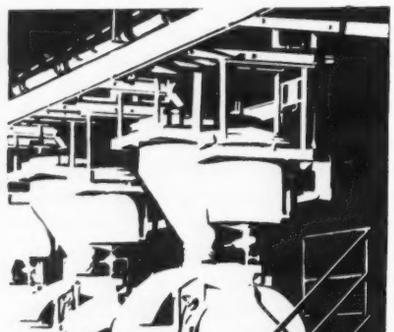
1. The oven should be designed with two heating zones. In the first zone steam is introduced, which travels with the product and becomes superheated when it reaches the second zone. The second zone is filled with this superheated steam and other vapors generated by the products. By operating the first zone at a low temperature, less steam will be required than usual, since none of the steam is used to decrease the excess oven temperature, as is done in other types of ovens. The second zone may be operated at a temperature higher than usual because of the ideal atmosphere of superheated vapor.

2. Care must be exercised in the design of the oven, as drafts and air infiltration into the baking chamber produce cooling, drying, or other detrimental effects upon the product. For reasons given in previous articles,* the entire oven above the loading-door openings must be fully air- and vapor-tight. Shafting

*Food Industries, Vol. 6, pp. 262-264 (June, 1934), and pp. 310-312 and 322 (July, 1934).

extending through the oven should be provided with stuffing boxes, and take-ups should be of special inclosed design. Roller bearings on shafting should be placed on the outside of stuffing boxes, and accessible from the room side.

3. Loading and unloading openings should be below the baking chamber to form a vapor seal. Two such openings, protected by loading

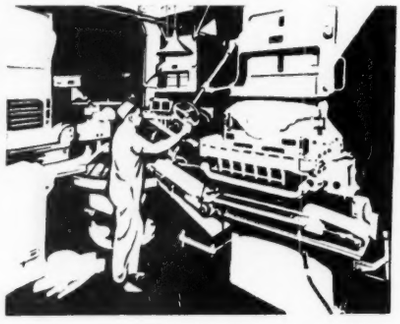


and unloading devices in front and rear of traveling-plate ovens, form a similar vapor seal, although the uneven static pressure which may exist in long oven rooms will still cause a flow of air through the baking chamber. However, such devices greatly minimize the air of infiltration, provided that the loading and unloading openings are placed well below the baking chamber.

4. Water and alcohol vapors driven off in the baking process should be removed from the baking chamber by means of an efficient vapor-seal trap, and run to a condenser where the byproducts may be collected. Where these vapors cannot be collected in sufficiently large quantities for byproduct recovery, they may be disposed of outside of the building. In either case this method eliminates the escape of the vapors and fumes into the oven room, thus preventing the discharge of hot vapors into the face of the oven operator and prolonging the usefulness of the paint on the walls and ceiling.

5. The oven should be provided with an efficient indirect heating system complete with automatic control.

Steam-pipe heating is a very efficient indirect heating system, but requires very special knowledge of design if it is to operate successfully. This system has one great disadvantage: If once designed to maintain certain temperatures at top, bottom, front, rear, and center of the oven, there is no opportunity of changing these temperatures except by changing the furnace temperature, which uniformly raises or lowers the temperature of the entire oven. This is not a disadvantage if the design of the heating system has been perfect and the proper temperatures are maintained in various parts of the oven. However, should the design be faulty, it will be necessary to redesign the entire heating system, for this system is not as flexible as electric or indirect-gas-fired systems. The latter may always be adjusted to change or correct local temperature conditions.



The inclosed recirculating duct system is another method of indirect heating which requires careful study in its design, especially in cases where a few ducts of large size run parallel with the oven conveyor. It is possible that the products may get a streaky appearance during baking because certain parts of the duct system are radiating more heat than others. This condition is likely to occur if the heating surface is too small and the temperature of the duct system is high.

Cross-Tube Heating System

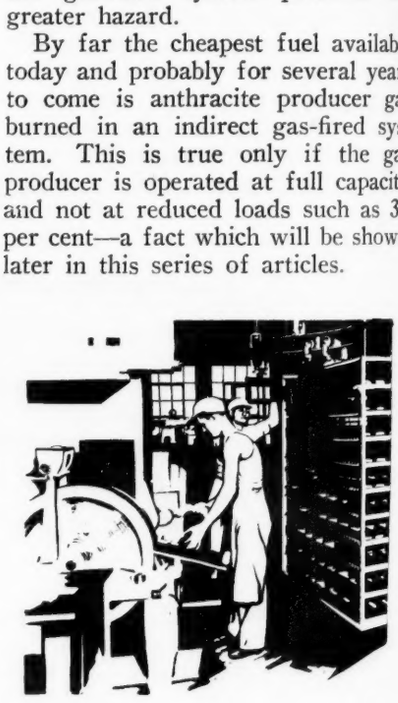
In the cross-tube system, if the heating surface is of liberal size, so that the temperature range of flue gases entering and leaving the tubes is not too great, one may expect fairly good results. However, if the heating surface is small and the initial flue-gas temperature is high, it is possible that there will be a marked difference between the products baked close to the high-temperature ends of the tubes and the products baked close to the low-temperature ends of the crosswise tubes.

By using the hairpin or return-bend type of tube system having a large heating surface, very good results may be obtained. The condition of uneven baking encountered in the straight cross-tube system is eliminated in this system because the baked products alternately pass a high- and a low-temperature end of a tube.

Choice of Fuel Not Arbitrary

Any of the foregoing heating systems may be either oil-fired or indirect-gas-fired. The indirect-gas-fired system is the cleaner of the two. The oil-fired system requires cleaning at intervals. Both oil and indirect gas systems are subject to explosions; the gas-fired system presents the greater hazard.

By far the cheapest fuel available today and probably for several years to come is anthracite producer gas burned in an indirect gas-fired system. This is true only if the gas producer is operated at full capacity and not at reduced loads such as 30 per cent—a fact which will be shown later in this series of articles.



An electric heating system is by far the most efficient and flexible method of heating when used in a perfect vapor-seal bake oven. In this type of oven electrical energy is used only for baking the product, not for heating the bake shop, as has been the case with electrically heated tunnel ovens in the past.

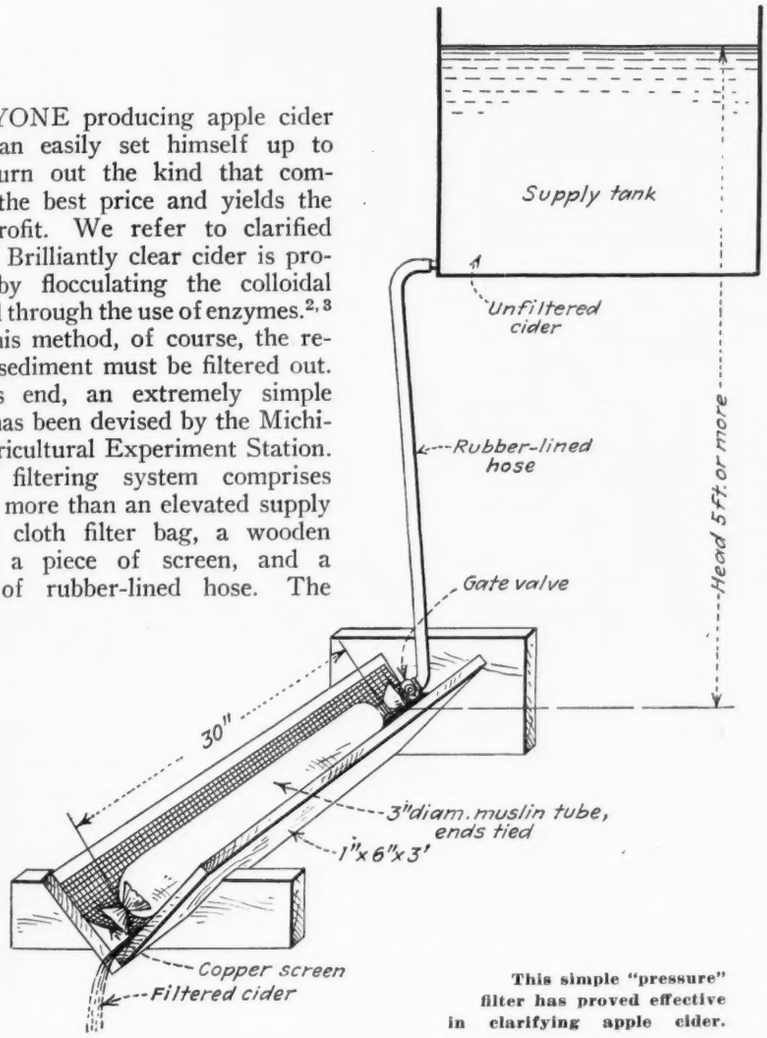
The cost of baking by electricity is not as great as some may think, provided that all items of cost are taken into consideration. This too is a fact which will be proved later in this series of articles. At that time we shall compare an oven representing the cheapest method of heating with another oven heated by electricity.

CLOTH TUBE

Effectively Filters Sediment From CIDER

ANYONE producing apple cider can easily set himself up to turn out the kind that commands the best price and yields the most profit. We refer to clarified cider.[1] Brilliantly clear cider is produced by flocculating the colloidal material through the use of enzymes.[2,3] With this method, of course, the resultant sediment must be filtered out. To this end, an extremely simple set-up has been devised by the Michigan Agricultural Experiment Station.

This filtering system comprises nothing more than an elevated supply tank, a cloth filter bag, a wooden trough, a piece of screen, and a length of rubber-lined hose. The "heart" of the system is the filter bag, or tube. Made of unbleached muslin, this tube is a yard long and approximately three inches in diameter. One end is closed by folding back and tying. The other end is tied over the hose leading from the supply tank. The tube itself does not filter the cider, but a "filter aid" introduced into the product in the supply tank does the work. This collects in a uniform layer on the walls of the tube. Pressure resulting from the elevation of the tank forces the cider out uniformly over the surface of the tube, and the liquid drains from the trough.



This simple "pressure" filter has proved effective in clarifying apple cider.

To provide a flow, the trough is sloped slightly, and it is left open at one end. A screen of copper or stainless metal supports the tube above the bottom of the trough and allows free drainage.

The supply tank should be of wood or of stainless or glass-lined steel. It may be fitted with a brass spigot, or the cider may be siphoned out. The hose should be about $\frac{5}{8}$ in. in diameter and it may be fitted with a $\frac{1}{2}$-in. gate valve near the tube.

The "head" between the tank and the tube should not exceed 15 ft.; 8 ft. will prove satisfactory. The rate of filtration varies with the head, the flow being 0.65 gal. per minute for a 4-ft. head; 1.43 for an 8-ft. head and 3.34 for a head of 14 ft.

Briefly, directions for clarifying and filtering the cider are as follows:

1. Add Pectinol to freshly expressed cider, 20 to 30 oz. per 100 gal. The Pectinol should be placed in a small quantity of water or cider having a temperature of about 100 deg. F., agitated at intervals for 20 minutes and strained through cheese cloth into a barrel or vat of cider.

2. Allow about 15 hours for Pectinol to work.

3. Place the cider in supply tank and add "filter aid," about 2 to 4 lb. per 100 gal. Allow the cider to run through filter aid until clear. If the cider fails to clear up, look for a leak in the system.

4. Clean the tube by holding it over the end of a water tap. With a small pressure head cleaning may be necessary every 20 to 40 gal.

REFERENCES

[1]Marshall, Roy E.: "Clarifying Cider Increased Demands From Consumers." Mich. Agr. Exp. Sta. Quart. Bul., Vol. XIV, No. 3, 1932.

[2]Williaman, J. J.: "Economical Clarification Through Use of Enzymes." FOOD INDUSTRIES, August, 1933, pp. 294-295.

[3]Kertesz, Z. I.: "A New Method for Enzymic Clarification of Unfermented Apple Juice." N. Y. Agr. Exp. Sta. Bul. No. 589, 1930.

Saves Million Dollars

(Concluded from page 399)

are made by leaving the goods outside the store door. There is no possibility of the driver stealing other goods from inside the store when making deliveries, as he cannot crawl under the vestibule or jump over its 7-ft. walls. He might slit the canvas with a knife, but this would leave its telltale evidence.

The above procedure covers the use of the vestibule by a company owning both the stores and the trucks. Likewise, it may be used by organizations having their deliveries made by outside truckers and by outside companies, such as fruit and vegetable distributors and milk and bread companies, making their own separate deliveries. In our estimation, these uses offer the widest application of the vestibule idea and its money-saving advantages in the food field.

A comparison between the old and the new.

At the left, Borden's new pneumatic-tired milk wagon, the first to be used on New York City streets. Rubber-covered shoes are used on the horses, making the vehicle so silent in operation that it needed to be equipped with a horn!

First Truly Silent Horse Wagon

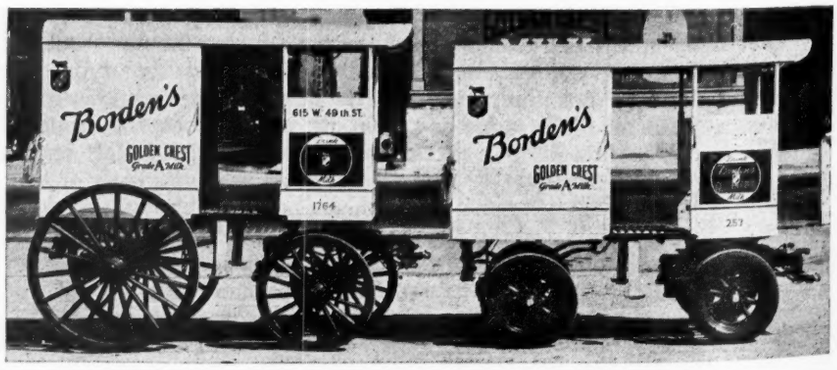
PART IV

Borden's first to use pneumatic tires on milk wagons in New York . . . But also silences horse . . . Needs horn for safety . . . Lighter horses and lower wagon upkeep possible

THE FIRST pneumatic-tired milk wagons in New York City were put on the street late on Aug. 28 by Borden's Farm Products Co. This wagon conversion, the first change-over in Borden's New York fleet of 2,100 wagons, differs from all similar work previously done in other parts of the country by combining the use of the pneumatic tire with a newly patented light, durable, rubber-covered horseshoe, producing a horse-drawn vehicle so silent that it has been necessary to equip it with a horn! Some of these wagons will work out of the 49th St. branch; the rest will serve one of the New Jersey suburbs.

To the automotive bureau of the Borden Co., under W. R. Hall, director, was assigned the detailed study resulting in this curious combination of horsemanship and automotive engineering, W. P. Kearney being in active charge. Of the several advantages that can accrue to this progressive step, it appears that one of the greatest will be the good-will value created by putting out the first really silent milk wagon on the street. In noise abatement this wagon conversion has its greatest public appeal. Elimination of complaints against wagon noises and plodding hoofbeats in early morning hours should result in more contented customers, and perhaps increased patronage.

Certain economic advantages, it is hoped, will arise from the conversion, principally modest reductions in wagon operating expenses, the most



The floor of the pneumatic-tired wagon is 8 in. closer to the ground. The difference in height between the front and rear axles with steel-tired wheels is taken up on the new wagon by shortening the front springs and reducing their camber; by the use of a thinner spring pad on the front axle and 2½-in. oak blocks on the rear axle.

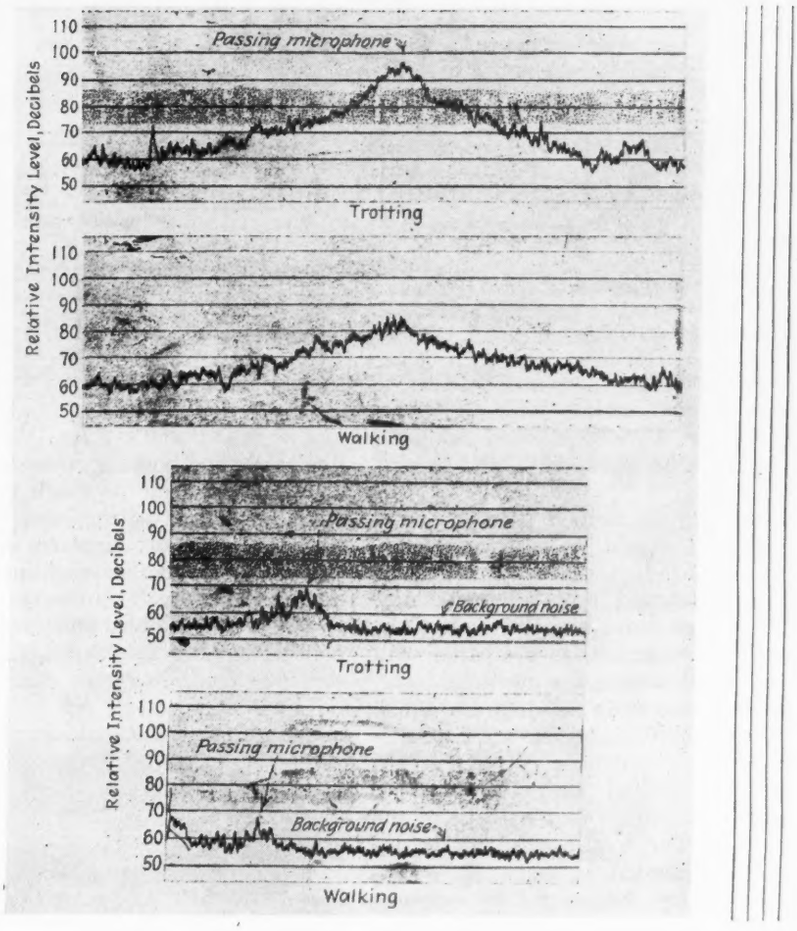
important of which would be wagon upkeep. The cushioning effect of pneumatic tires may possibly result in a saving of about $15 a year on this item. Furthermore, there is a reduction of more than 300 lb. of unsprung weight by the conversion of a 1,925-lb. steel-tired wagon to a 1,600-lb. pneumatic-tired vehicle. The effect of this weight reduction, together with the use of anti-friction bearings, has made the wagon so much easier to pull that it is possible to use lighter horses. Thus an animal weighing between 1,300 and 1,400 lb. can replace the heavier 1,600- to 1,700-lb. horses now needed to pull a steel-tired vehicle with plain wheel bearings.

Smaller animals usually eat less food, and if the theoretical saving here should amount to as much as 5c. per day, the yearly saving will be $18.25 per horse. Adding to this amount the estimated $15 saving on maintenance gives an indicated total saving of $33.25 per year per unit.

On the side of the intangibles, in addition to noise abatement, is the lowering of the wagon floor (41 down to 33 in.), which unquestionably will make it easier for the salesman to handle his goods and may result in fewer slipping accidents while getting in and out of his wagon.

The estimated cost of converting a wagon is $75, exclusive of tires, unless the tires supplied are new and are charged to current expense. On these wagons it is planned, however, to use fully depreciated tires that have seen considerable service on Borden automotive equipment.

The decision to convert the Borden wagons in the metropolitan territory was made after a series of tests on several sample installations with different types of axles, anti-friction and plain bearings, wheels and tire sizes. The type of conversion unit eventually selected was chosen for its relatively



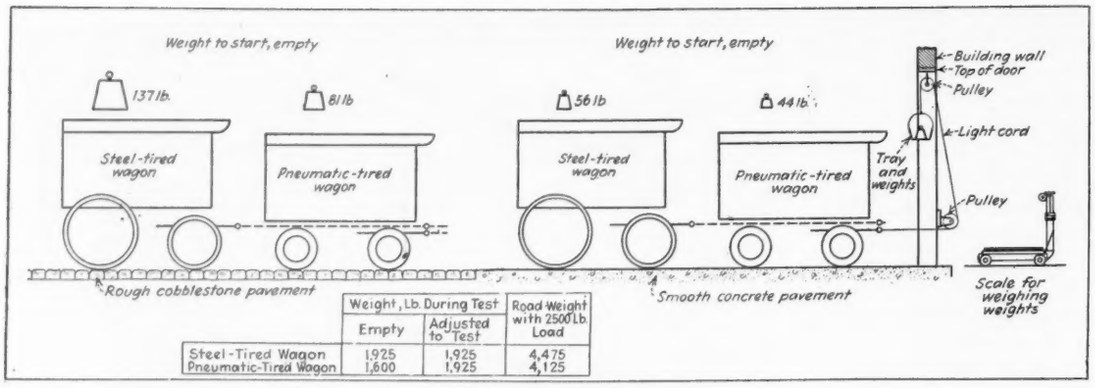
Below is shown the position of the noises produced by an ordinary milk wagon and a converted unit, both walking and trotting, in its relation to other well-known noises which have been measured. The threshold of audibility is 0 decibels.

The curves shown above are the automatic record of the noise of the ordinary and converted milk wagon, and horses with steel and rubber shoes, trotting and walking, as determined by the acoustic consulting department of Electrical Research Products, Inc., on an actual test. Note how long the noise rises and falls as the steel-tired wagon passes the stationary microphone, whereas the converted wagon, drawn by a walking horse, produces barely enough noise to go above the inevitable background noise which is typical of any city.

AVERAGE LOUDNESS OF TYPICAL NOISES AS MEASURED BY WESTERN ELECTRIC SOUND METERS

(0 DB = 10^{-16} watts per sq.cm. at 1,000 c.p.s.—40 DB equi-loudness contour)

DISTANCE FROM SOURCE FEET	SOURCE OR DESCRIPTION OF NOISE	NOISE LEVEL DB	SOURCE OR DESCRIPTION OF NOISE
		120	
15	UNSILENCED AIRPLANE ENGINE		
		110	
4400	GROUP OF 30 ARMY PURSUIT PLANES—DISTANCE ½ MILE ALTITUDE—3500 FT.		INTERIOR OF SUBWAY TRAINS IN SUBWAY CONSTRUCTION AVERAGE RUNNING SPEED
	INTERIOR OF TRIMOTOR TRANSPORT AIRPLANE—LEVEL FLIGHT AT CRUISING SPEED	100	PNEUMATIC DRILL - 10 FEET
	TENDER OF 4-8-4 MOUNTAIN TYPE LOCOMOTIVE - 60 M.P.H.		BORDEN MILK WAGON - STEEL TIRED - STEEL SHOD HORSE - TROTTING
8-50	VERY HEAVY STREET TRAFFIC	90	
	BORDEN MILK WAGON - STEEL TIRED - STEEL SHOD HORSE - WALKING		INTERIOR OF SUBWAY TRAIN IN OPEN AIR - 40 M.P.H.
25-50	AVERAGE MOTOR TRUCK		BUSY STREET TRAFFIC
	INTERIOR OF HEAVY SUBURBAN MULTIPLE UNIT ELECTRIC TRAINS AT AVERAGE RUNNING SPEED	80	INTERIOR OF PULLMAN CAR—SUMMER OPERATION
		70	
	RATHER QUIET RESIDENTIAL STREET, AFTERNOON		BORDEN MILK WAGON - PNEUMATIC TIRED - RUBBER SHOD HORSE - TROTTING
25-50	QUIET AUTOMOBILE	60	BORDEN MILK WAGON - PNEUMATIC TIRED - RUBBER SHOD HORSE - WALKING
50-300	MINIMUM STREET NOISE LEVEL - N.Y.C.	50	



	Weight, Lb. During Test		Road Weight with 2500 Lb. Load
	Empty	Adjusted to Test	
Steel-Tired Wagon	1,925	1,925	4,475
Pneumatic-Tired Wagon	1,600	1,925	4,125

Diagrammatic sketch of the simple method employed to determine the weight or relative pounds pull required to start the two types of wagons from rest on two different kinds of pavement.

low first cost, light weight and ease of assembly.

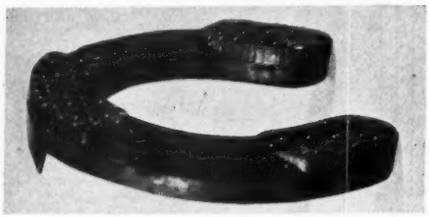
The simple method used to determine the weight or relative pounds pull required to start the movement of the selected type of pneumatic-tired wagons on two different types of level pavement, as compared with steel-tired wagons on the same pavement, is shown in the diagram. Small weights were placed one after another in a basket receptacle, connected by a flexible braided sash-cord running over two pulleys to the front of the wagon. The total weight in the receptacle needed to start the wagon moving was determined by weighing them on a scale. The recorded weight, or relative pounds pull, for the two types of wagon on the two kinds of pavement are given on the drawing shown above.

Other tests were made by the Borden's Farm Products Co. of Michigan, in Detroit, where 50 pneumatic-tired wagons were already in service, and by the Gridley Dairy Co., of Milwaukee, Wis., which has six such wagons. These tests, in conjunction with those made in New York City, may eventually result in the general conversion of steel-tired wagons to pneumatics by the Borden Co.

To determine just how quiet the wagons really are, the noise intensity was measured by Electrical Research Products, Inc., as shown in the accompanying charts and the explanatory diagram. Noise intensity, measured in units called decibels, for practical purposes is the measure of the greatest intensity. In other words, it is the loudest noise that can be heard by the human ear.

From this test it is apparent that the pneumatic-tired wagon drawn by a rubber-shod horse, either walking or trotting, made no more noise than the subdued sounds of a quiet residential street in the afternoon. But the steel-tired wagon drawn by a trotting steel-shod horse over an ordinary rough street made as much noise as would be found in the interior of a trimotor transport airplane, or only slightly less than that of a pneumatic drill 10 ft. away.

The results claimed for the Borden conversion and its layout and construction coincide rather closely with the principles enumerated in preceding instalments in this series of articles in Food Industries.



Even the horses are "silenced" by rubber-covered shoes, which are made in the open-face form common to the familiar steel shoes. The covering is of new, highly resilient rubber instead of the "dead" reclaimed rubber so generally used in the closed-bottom footpads with which most horses are rubber-shod.

The new rubber-covered horseshoes —a most important factor in producing a silent unit—are similar in design and weight to the light steel plates worn by racing horses, but are rubber-covered. Each shoe weighs about 1.5 lb., as compared with usual 3-lb. iron horseshoe.

Most important in eliminating the 300-odd pounds of unsprung weight was the use of special axles made from heat-treated chrome molybdenum steel. The wheel, roller-bearing and axle assemblies were purchased complete (less tires) ready for local installation. Tires are 5.25x18-in. balloons, fitted with Seal-O-Matic tubes of the puncture-proof type, and Schrader Dublchek valve caps (Food Industries, May, 1933; page 182) to help maintain inflation pressures for approximately a month.

WHAT'S ON YOUR MIND?

An anonymous communication signed "Dumb Reader" forces us to do an "Ed Wynn" (and gosh, how we dread it!).

Dear "Dumb Reader":

Many thanks for your postal card, particularly for the 11 etcs., which are more useful than you might imagine.

The monthly figures to which you refer are published each month in a graph form on the Trends pages. The reason they are shown as a dotted line is because we are a little skeptical and fear that they are to be revised before long. Something went cockeyed in May, 1933, and has been that way ever since then.

Why don't you write your ideas more fully? We are so indelicate as to hint that there might be a modest monetary reward if your views can be published without sending us to jail. Your identity must be disclosed to us, although we will agree to preserve your anonymity.—Editor.

To the Editor of Food Industries:

Your editorial on Unemployment Insurance in the June issue of Food Industries should be copied by every trade journal in the land. Unemployment insurance must be based on the stabilization of the industry providing the insurance. Any form of insurance that does not recognize this will be a disappointment and a failure.

L. J. Schumacher, President,
American Cone & Pretzel Co.

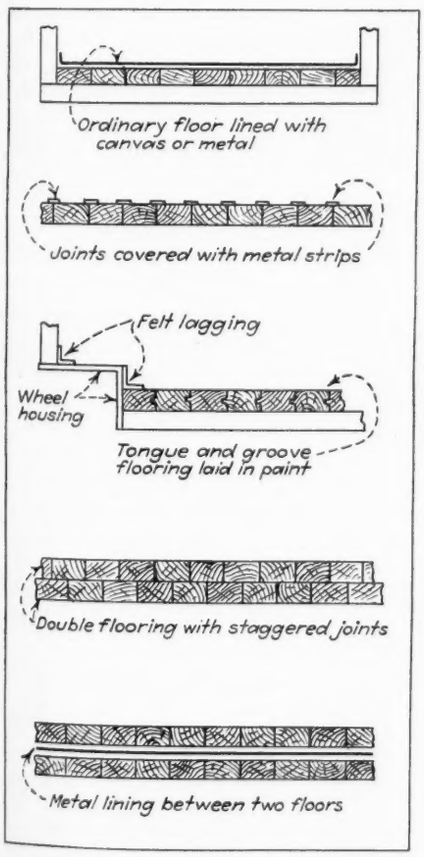
The Readers' FORUM

(((In Which Are Discussed Practical Automotive Transportation Problems in the Food Field

Doors Have Felt Binding

WE purchase airtight bodies and have the doors all inlaid with felt binding to keep the dust out. We have the top lined with cork and have canvas on the floor of the truck to keep dirt and dust out.

We also have weather-stripping where it is possible that it can be used to advantage in keeping the interior of the trucks clean. We have had little trouble with dust leakage under this arrangement. We did at one time consider the installation of air vents in the rear doors or the roof, but it was decided that they would let in more than they would benefit by their ventilation. The back doors of the trucks are fitted with special latches in order to keep them closed tightly at all times. — T. R. MURPHY, *vice-president and manager, Fehr Baking Co., Beaumont, Texas.*


Ordinary floor lined with canvas or metal
Joints covered with metal strips
Felt lagging
Wheel housing
Tongue and groove flooring laid in paint
Double flooring with staggered joints
Metal lining between two floors

Five different methods of constructing the floors of bread, cake, and other food products trucks to prevent the admission of dirt, dust and gasoline or exhaust-gas fumes.

THIS MONTH'S QUESTION

QUESTION 1

Body Fumes

When selecting new gasoline motor trucks for bread or cake delivery, what precautions does your company take, in drawing up the original truck and body specifications, to prevent gasoline and exhaust gas fumes from damaging the goods carried by the truck?

What running maintenance precautions are set up to insure that prevention of damage by fumes is constantly accomplished?

Gasoline Tank Outside Frame

WE endeavor to have all our custom-built bodies, both for bread and cake work, built absolutely weathertight and as airtight as possible. This tends, to a great extent, to exclude all fumes of any kind.

We also make it a practice to see that the exhaust pipe is carried the full length of the chassis and sufficiently in the rear so that the fumes will be carried away from the body, both when the truck is in motion and standing still.

In connection with gasoline fumes, we endeavor, wherever it is practical, to have the tanks installed on the outside of the frame, which tends to prevent the fumes from entering the body. As far as we know, of late years we have had no record of any complaints of any of our merchandise being damaged through fumes from either the exhaust or the gasoline tanks in the trucks.—F. C. DEISHLY, *sales dept., National Biscuit Co., New York, N. Y.*

•

Double Floors Are Airtight

IN building a truck body, we require a double floor and we regard it important to have the floor airtight. This is about the only thing we require from the body builder. The exhaust is carried out of the side of the truck instead of the rear. We install what is called an oil breather and originally attached a small overflow tank for gasoline. Our trucks are all given a careful weekly inspection. We find that the chief complaint regarding gasoline fumes comes from carelessness in filling the gas tank. In other words, care in handling the truck is of more importance than any particular construction.

The arrangement of the overflow gasoline tank has not worked out as well as we expected and I cannot recommend it. After all, this is a matter requiring care on the part of the truck driver and the gasoline-station attendant and it should be sufficient to impress them with the fact that *no overflow* of gasoline in filling the tank *must be permitted.* No overflow tank can provide for unlimited carelessness, and we have come to the conclusion that it is better to impress the driver with the importance of seeing that the tank is never filled to the point of overflowing than it is to anticipate or make provision for his carelessness in this respect.—L. J. SCHUMAKER, *president, American Cone & Pretzel Co., Philadelphia, Pa.*

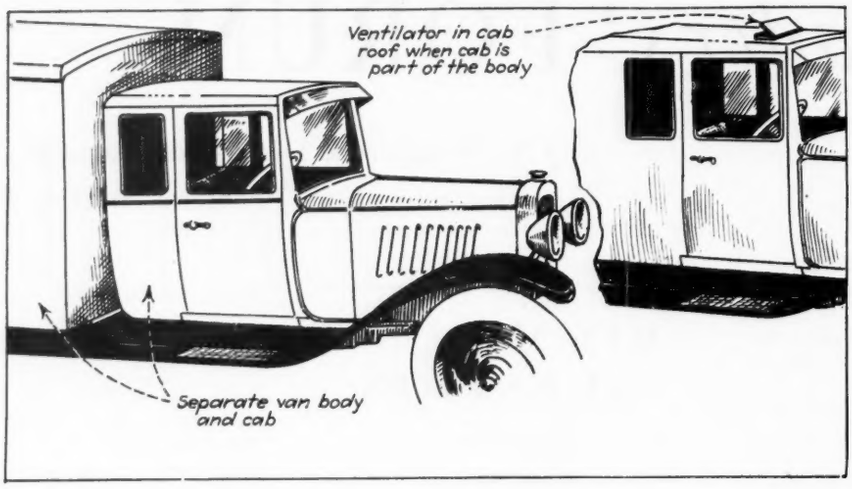
•

Use Cab Separate From Body

IN time past, when we used the conventional bakery body, in which the cab and the body of the truck were integral, we have had to extend the muffler exhaust beyond the rear axle and direct it somewhat toward the ground. Too, we have in several cases lined the bottom of our truck bed with sheet metal.

Within the last year or two, we have gone over and are now standardizing on separate van-type bodies. This body is made up with a tongue-and-groove floor. The flooring is painted as it is put together. At points such as the wheel housing and along the wall we use felt lagging to prevent dust from coming up into the body at these points. Building the body in this manner, we have used standard truck chassis made by Chevrolet, and have experienced little difficulty regarding gasoline and exhaust fumes.

As far as maintenance is concerned, our bodies are checked about every other month—oftener on one or two hard jobs—and when we find dust getting into the body we attempt to eliminate that by using a beaded lagging, similar to that used on refrigerator doors,



A cab separate from the body helps to keep gasoline fumes out of the latter. When the cab and body are integral, a ventilator in the roof of the cab helps to accomplish the same purpose.

around the doors of our truck. In some places we use sponge rubber. It is most seldom that we have any difficulty with the dust coming up any place except in the doors. However, when we do find dust getting in, we locate the crack allowing the seepage of dust, and close it up either with felt, wood or metal, according to the nature of the opening. By taking care of the dust, we have entirely forgotten the question of gas fumes in these separate bodies, and, since we have heard no complaints, we presume that we have taken care of that phase of the question also — ARMAND HECHT, *Hecht's Bakery, Bristol, Tenn.*

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Muffler Exhaust on Left Side

WHEN building our trucks, we have all gasoline tanks placed on the outside of the body on the running board. If the running board is not available, the tank is strapped on the frame at about the same location, which is on the left-hand side of the truck at the edge of the front door. This prevents all gasoline fumes from being absorbed into our products.

As regards the exhaust, this is carried by an extended exhaust pipe almost to the rear of the body and comes out the left-hand side so as to make it impossible for the fumes to go into the truck through the back door when the driver is making deliveries. This has eliminated all our troubles with gas fumes.—J. J. VAUGHAN, *Frisbie Pie Co., Bridgeport, Conn.*

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Ventilator Placed in Cab Roof

WE find it to our advantage, in transporting baked goods in gasoline-driven vehicles, to line the truck bodies with plyboard, leaving a vacuum 2½ in. in depth between the panel board and the outside metal of the body. We also found that metal placed between two floors which are laid in the bottom of the truck serves to protect our goods from fumes. We have also found that putting a top ventilator in the cab, so that the fumes from the motor go up through the top instead of settling in the cab, has been a great help.

If the exhaust pipe, after leaving the muffler, is tilted at the right angle, the exhaust does not go to the ground but flows out beyond the body length. Especially is this helpful when the car is stopped, and the motor is idling. We find that putting felt around the edges of our doors has proved beneficial. If motors are washed with gasoline or kerosene oil and the surplus of accumulations in the way of grease are kept off the motor, it will aid materially in reducing the fumes. — H. C. STEVENS, *plant manager, Holsum Bakery, Grand Rapids, Mich.*

•

Close-fitting Doors Essential

CLOSE-FITTING doors on rear and also back of salesman or driver and metal strips on floor, covering cracks, prevent the admission of dust and gasoline or exhaust gas fumes into our truck bodies.

We have no trouble from gasoline or exhaust gas fumes in our products.—JOSEPH COFFIN, *technical director, General Baking Co., New York, N. Y.*

•

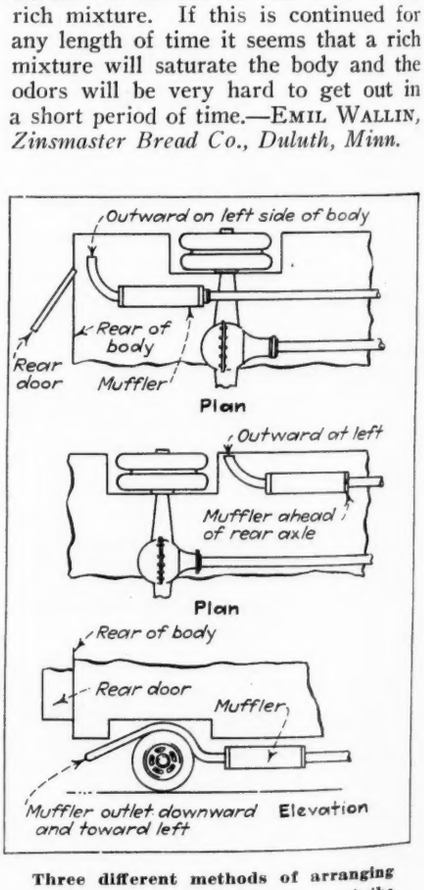
Floors Are Insulated

I THINK the insulation that we use in our bodies has a lot to do with keeping the fumes from getting into the bodies. We also use galvanized steel on the sills before we lay in the insulation and floors.

We run this galvanized iron up into the sides of the ribs of the truck to a point about 6 in. above the floor. We do this to keep all water and dampness away from our insulation materials, but I think it, too, has a lot to do with keeping fumes out of the body. We also have very tight-fitting back doors to overcome a sucking effect which has a tendency to draw in fumes when traveling at high speeds.

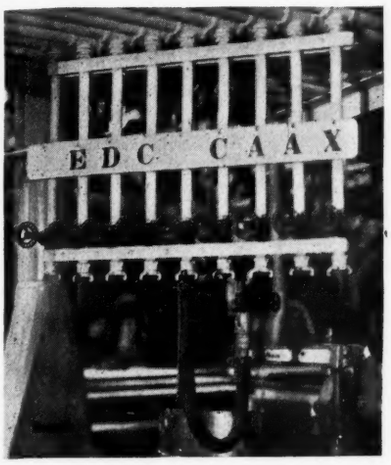
We do not extend our muffler pipe any further than about one-half way underneath the body. When it was extended we have found that we were getting fumes in through the back doors and that our paint jobs were receiving a smoky discoloration.

Also, it is very necessary to have the proper motor adjustment in the carburetor so as not to run with a too rich mixture. If this is continued for any length of time it seems that a rich mixture will saturate the body and the odors will be very hard to get out in a short period of time.—EMIL WALLIN, *Zinsmaster Bread Co., Duluth, Minn.*



Three different methods of arranging the muffler outlet pipe to prevent the engine exhaust gases from getting into the truck body.

IDEAS . . . FROM PRACTICAL MEN



Simplifies Piping System

In a large California packing plant it was necessary to connect nine pipes carrying syrups, brines and so forth to a filling machine. To avoid connecting the several conduits to the machine directly, the company adopted a flexible hose by which any one pipe may be connected to the machine as desired. Vertical pipes extend downward from the overhead conduits, terminating in quick-connecting joints which receive one end of the flexible hose. The pipes are lettered for easy identification and are also of different colors.

Loop as Low-Pressure Trap

Where sufficient headroom is available, the loop seal offers an economical method of draining low-pressure exhaust steam lines. As shown in Figs. 1 and 2, this form of trap must have at least 2.5 ft. of seal for each pound of steam pressure in the line.

The principle of operation is based on the depression of the water in one side of the loop until the pressure is balanced by the column of water in the other side. When additional water enters the seal, this balance is maintained and the seal overflows until an equilibrium is reached. A vent pipe must be provided to avoid losing the seal from siphoning action in the waste pipe, and a cold-water connection is needed for convenience in re-establishing the seal in case it is lost from excessive pressure.

When used to seal the overflow of an open boiler-feed-water heater under low pressure (Fig. 1), the loop will handle large quantities of water, act as an emergency relief valve should the relief valve stick, and in addition serve to break an excessive vacuum that might be formed in the equipment.

S. H. COLEMAN, *Waynesboro, Va.*

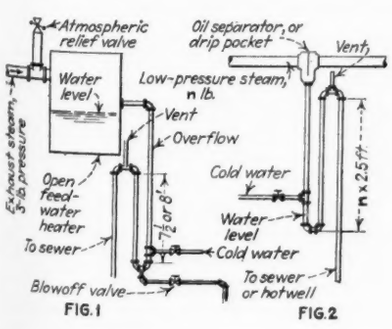


FIG. 1 FIG. 2

Vacuum-Clean Your Bolters

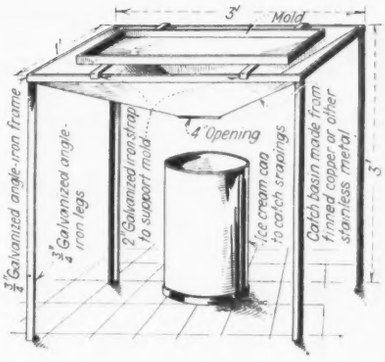
In every good bakery there is a bolter or sifter of some kind, and in every sifter there is flour in the innermost cracks and corners. If this flour is not taken out and the sifter fumigated frequently, insects will develop beneath it. To the man who knows his "bugs," some of these sifters make better incubators than flour cleaners.

It usually is impossible to do a practical job of cleaning with a brush. Air pressure sometimes is used, but this blows flour dust and insects all over the plant. The most satisfactory method is by suction. It not only draws all of the flour out of the deepest and smallest cracks but it takes a majority of the insects and their eggs with it. A vacuum system may be piped over the plant from one central machine, or a portable outfit such as is employed in cleaning office buildings may be adopted. Either method will soon pay for itself.

HARRY STINER, *New York, N. Y.*

Sanitary and Saving

In ice cream plants the mold-filling room can be kept sanitary and unnecessary waste of ice cream avoided by leveling molds over catch basins. The illustration shows such a


3' Mold
4' Opening
¾" Galvanized angle-iron frame
¾" Galvanized angle-iron legs
2" Galvanized iron strap to support mold
Ice cream can to catch scrapings
Catch basin made from tinned copper or other stainless metal
3'

basin made of tinned copper, or other stainless metal, supported on a frame and legs of galvanized angle iron. After filling the mold from the freezer or hopper, the operator sets it on the supports across the catch basin and levels the ice cream with a spatula. A can placed underneath catches the scrapings. In constructing this basin, the top edges of the drain pan are bent over and around the frame and soldered or riveted.

CHARLES C. WALTS, *Bordentown, N. J.*

No Need to Call for Help

It isn't necessary to call another hand to hold a funnel when it comes time to measure out nuts, malted milk powder and other ingredients during freezing operations in the ice cream plant with which the author is connected. Instead, the operator sets his funnel in a three-leg stand over the receptacle. Made in the plant's machine shop, the stand is fabricated from soft steel rods by welding.

BILLIE BURGAN, *San Diego, Calif.*

$3 FOR YOUR THOUGHTS

FOOD INDUSTRIES pays $3 or more for practical ideas for this page. Send yours in, with any necessary sketches or photographs.

KEEPING UP WITH THE FIELD . . .

- *Master code holds own as NRA revamps plans*
- *Sugar makes sacrifice hit for other industries*
- *Distributors put canners in hole on labeling*
- *AAA sets up profiteering bogey man, just in case*
- *FERA has production troubles as buying soars*

Master Code Still "Near Approval" But Other Pacts Get Attention

Although it has been "ready for approval" for two months, the master food code had not yet been cleared from the desk of Administrator Armin W. Riley when FOOD INDUSTRIES went to press. However, three other codes, minor ones, recently received official sanction, two new ones were submitted to N.R.A. and steps were taken to iron out several difficulties in the operation of existing codes.

At a press conference Aug. 21, Administrator Riley displayed the master code, a sheaf of papers about a foot high, said that he had just received it for consideration and gave the impression that it would be approved within two or three days. He still insists that the only thing responsible for the code's being held up has been the question of representation of proponents.

The three codes recently approved include those covering the pretzel and processed-fish-oil industries and the labor provisions of the wine industry. The two just submitted are divisional pacts for lobster fishing and New England sardine canning.

A great many of the smaller food trades do not yet have codes approved, and Mr. Riley seeks to consolidate these under the master code. He contends that it would be to their advantage, especially since it would cut their code expenses. In this category are the pickle, potato chip, gelatin, tea, dessert, cereals, dried fruit and baking powder industries. Mr. Riley also will pursue the policy of grouping the administrative activities of related industries while allowing the trades to maintain separate code authorities. Such a grouping would, for example, place the biscuit and cracker and pretzel trades under the baking code. One industry, wheat flour milling, already has gone on record as favorable to such an arrangement.

The various industries in the dairy field, however, apparently have no intention of getting together. At a conference Aug. 8 between representatives of the industry and N.R.A. officials, every single branch of the industry balked at going under a master code. Most of them, however, are willing to operate under separate codes.

Many of the approved codes when put to the test of practical operation have shown weaknesses which have to be removed. The bottled soft drink industry found that it needed a schedule of uniform deposits on containers and another of "lowest reasonable costs." The code authority asked N.R.A. approval of both, and the schedule of deposits has gone through, effective Aug. 28, removing one of the opportunities for price discrimination.

The macaroni code authority, determined to prevent code violations, has proposed an amendment to the code which would permit an agreement whereby members of the industry would be required to pay varying amounts "for liquidated damages upon determination of code violation by the administrator." Specific sums are proposed for a variety of possible violations. The macaroni industry also has asked for, and secured, exemption from administrative order X-36, which permits the code authority to assess wholesale grocers and chain store distributors who manufacture macaroni products as part of their operations.

The wheat flour millers at last have secured approval for restoration of that section of their code which prohibits destructive price cutting as an unfair trade practice. However, the remainder of Art. 9, the much desired stop-loss provision, has not been restored, although that is receiving consideration in Washington.

Tariff on Cuban Sugar Cut to 0.9c; Many Foods to Benefit by Swap

In the first of America's new reciprocal trade agreements, concluded with Cuba on Aug. 24, the domestic sugar industry took it on the chin that other food trades and a number of non-food industries might gain an increase in exports. The agreement reduced the duty on Cuban sugar from 1.5c. to 0.9c. a pound during the life of the Costigan-Jones sugar restriction law. The pact also lowered the rates on early winter fruits and vegetables from Cuba during those seasons when domestic crops are not on the market.

Bigger Market for Meat

Of the domestic food industries to profit by the treaty through reciprocal rates, meat packing probably will gain most, especially since Cuba once was the third largest outlet for American lard and meat products. Millers also stand to gain a fair amount of trade, Secretary Wallace believes, and several other food groups will enjoy export advantages. Below is a list of the new and old Cuban rates on foodstuffs.

The following are based on 100 kilogram (220-lb.) lots: Lard, $5 (new) and $21.16 (old); compound lard, $16 and $25.52; refined cottonseed oil, corn oil and soy bean oil, $3.01 and $13.

Other refined vegetable oils, $4.02 and $15.60; soap-making crude animal oils and fats, $1.60 and $2.40; pickled or salted pork, $9 and $14.40; bacon, $13.25 and $16.80; cured or smoked hams and shoulders, $14.42 and $19.20; sugar-cured hams or shoulders, $21 and $24; mackerel, $1.69 and $1.95.

Unhulled rice, $1.60 and $1.92; hulled rice, $1.85 and $2.22; wheat flour, $0.91 and $0.91 (wheat flour made of wheat grown in the United States shall be accorded a preference of 40 per cent); corn meal, $3.64 and $6; oatmeal, $1.30 and $6; meals of other cereals, $1.60 and $6; wheat semolina, $2.10 and $6; red and pink beans, $3.75 and $4.

Peas, $1.82 and $2.08; potatoes imported from July 1 to Oct. 31, $2 and $4; melons imported from July 15 to Jan. 31, $1.20 and $4; figs and raisins, $1.36 and $1.56; other dried and evaporated fruits, $2.80 and $3.40.

These are based on a kilogram (2.2 lb.) basis: Canned sardines, 2.4 and 9c.; canned salmon, 13 and 15c.; non-specified canned fish and shellfish, 8.4 and 9c.; canned peas, sweet corn and asparagus, 7.2 and 8.4c.; canned pears, peaches, plums, apricots and the like, 6 and 7.2c.

Canned beef, mutton or pork, 30 and 32c.; cocoa or candies with chocolate as a base, 48 and 64c.; jams and jellies, caramels, sweetmeats, candies and chewing gum, 18 and 24c.; fine crackers, containing from 15 to 30 per cent of chocolate or sweetmeats, $16.80 and $64.

In view of the reduction of the tariff on Cuban sugar, the Cuban government may maintain the price of the commodity by an export tax or by fixing a minimum price. This would prevent dumping.

Reciprocal trade agreements will be negotiated with Latin American countries in the near future, and it is understood that these will place a tax on coffee, tea, cocoa beans and bananas.

WALTER WHITE W. M. STEVENS R. H. HOLLINGSHEAD

Walter White deputy food administrator of N.R.A., who was directly in charge of the canning code, resigned early in August to become executive secretary of National Industrial Advisory Board. W. M. Stevens is the new deputy administrator of Division 6. Mr. White's assistant, E. W. Burgess, also has taken another position, and in his place is R. H. Hollingshead.

Takes Sugar Act to Court

Hawaiian sugar producers have at last carried out their threat and have asked the District of Columbia Supreme Court for an injunction against enforcement of the A.A.A. sugar act, as applied to their industry. The basis of the Hawaiians complaint is that in basing their quota on the period 1930-32 instead of the "most representative years 1931-33," Secretary Wallace discriminated against Hawaii.

The administration is not much perturbed by the complaint.

AAA Won't Commit Itself To Future Policies

Those in the know in Washington are willing to give odds that there will be a wide revision of the policies of the Agricultural Adjustment Administration. But A.A.A. officials, unsure of the complexion of the next Congress, and awaiting the ultimate results of the drought, are not committing themselves to any program other than the revisions necessary to adjust crops to the conditions introduced by the drought.

Farmers themselves are to determine future government crop control, Chester Davis; A.A.A. administrator, declares. Even if the majority opinion among the farmers favors complete abandonment of crop limitations, the A.A.A. will respect it, the administrator states.

Both Mr. Davis and Secretary Wallace insist that no changes in processing taxes are contemplated now, nor are they even being considered.

Direct control of livestock next year is in doubt, according to the administrator, because the emergency phase of the curtailment is over and destruction of feed supplies by the drought will take care of the situation.

So far, the A.A.A. has changed its plans to the extent of extending the maturity date on corn loans from Sept. 1 to Jan. 1 to allow for orderly marketing of the sealed grain. But Mr. Davis has broadly hinted that such loans would not be made by the government next year, since the need for these advances likely would be obviated by the demand for corn as feed. The administration also has announced that it will reduce next year's wheat crop by 10 per cent instead of the scheduled 15.

WHAT CODES COST

The following are lists of the code budgets approved and submitted during the past 30 days:

Industry and Period	Amount
APPROVED	
Coffee—Year to Feb. 15, '35	$ 75,000
Date Packing—During 1934	10,000
Macaroni—Feb. 1, '34, to June 30, '35	172,040
Mayonnaise—Year to April 10, '35	75,000
SUBMITTED	
Baking—Year to July 9, '35	$900,000
Canning—Year to May 31, '35	150,000
Ice Cream Cone—Year from June 18, '34	29,240
Malt Products—Year to June 30, '35	31,000
Peanut Butter—Year to April 13, '35	36,000
Preserve—Year from June 8, '34	41,400
Raw Peanut Milling—Feb. 1 to Dec. 30, '34	32,650
Spice Grinding—Year to Aug. 1, '35	27,500

Code Authorities Named

N.R.A. recently has approved code authorities for the ice cream cone, macaroni and yeast industries and has recognized a complaints committee for the canning industry. It also has named Paul Eliel, San Francisco, administrative member of the California sardine code executive committee, and Thomas E. Hardenbergh, New York, administrative representative on the code authority of the cocoa and chocolate industry. The following are the code authorities and canning complaints committee:

ICE CREAM CONE INDUSTRY

U. A. Kreidler, National Biscuit Co., New York; Max Goldberg, Illinois Baking Co., Chicago; C. R. McNiece, Cream Cone Machine Co., Cleveland; Sol S. Leaf, Milko Cone & Baking Co., Inc., Chicago; J. Thurman, Eastern Baking Co., Chelsea, Mass.; R. H. Prigg, Quality Cone Co., Joplin, Mo.; and M. B. White, Paramount Cone Co., Cambridge, Mass.

MACARONI INDUSTRY

ATLANTIC DISTRICT—William Culman, Atlantic Macaroni Co., Long Island City, N. Y.; G. Guerrisi, Keystone Macaroni Manufacturing Co., Lebanon, Pa.; Henry Mueller, C. F. Mueller Co., Jersey City, N. J. ALLEGHANY DISTRICT—Alfonso Gioia, A. Gioia & Bro., Rochester, N. Y. NORTH CENTRAL DISTRICT—John V. Canepa, John B. Canepa Co., Chicago; Louis S. Vagnino, American Beauty Macaroni Co., St. Louis, Mo. GULF DISTRICT—Leon G. Tujague, National Food Products Co., New Orleans. PACIFIC DISTRICT—M. DeMattei, San Jose-Ravenna Pasto Co., San Jose, Calif. AT LARGE—G. G. Hoskins, Libertyville, Ill., president of National Macaroni Manufacturers' Association.

CANNING INDUSTRY
(Complaints Committee)

Robert C. Paulus, chairman, Paulus Bros. Packing Co., Salem, Ore.; H. E. MacConaughey, Hawaiian Pineapple Co., Ltd., San Francisco, Calif.; Fred B. Childs, Libby, McNeill & Libby, Chicago; Julian McPhillips, Dorgan-McPhillips Pkg. Corp., Mobile, Ala.; Karl K. Mayer, Kuner-Empson Co., Brighton, Colo.; M. C. Hutchinson, Michigan Fruit Canners, Fennville, Mich.; E. B. Cosgrove, Minn. Valley Canning Co., Le Sueur, Minn.; Guy L. Webster, G. L. Webster Co., Inc., Cheriton, Va., and S. Comstock, Snider Packing Corp., Rochester, N. Y.

Distributors Adopt Label Grades; NRA to Force Them on Canners

Tugwell Bill or no Tugwell Bill, labeling standards for canned foods seem to be in the offing. Apparently motivated by the desire to build consumer goodwill, Great Atlantic & Pacific Tea Co. intends to adopt the Department of Agriculture grades for canned goods distributed through its 15,000 retail outlets. And Food and Grocery Chain Stores of America, which embraces most of the country's food store chains not in the A. & P. organization, has decided to "urge adoption of the Department of Agriculture standards on all their canned goods" and to "adopt informative wording on all canned goods labels clarifying the contents to the consumer." It pledges to the administration "wholehearted support and active assistance in this important matter." The wholesalers, too, have thrown in their support, though not so strongly. In a memorandum filed with N.R.A., Victor H. Hanf, chairman of the canners' conference committee of National-American Wholesale Grocers' Association, suggests united trade action for reforms in grade labeling of canned foods.

Libby, McNeill & Libby, while not adopting government grades, have redesigned their labels for canned peas and beets to make them more informative. The labels contain a graphic illustration of the size of the peas and tell the number of beets contained in the can. The

company is distributing to consumers a chart and pamphlet defining the grade names used on its labels.

These far-reaching developments in the reform of labeling please the administration no end. And well they may, since they give N.R.A. a whip to hold over the canning industry, which has held out against the administration's demands for label grades. Early in August, N.R.A. termed inadequate labeling recommendations submitted by the standard committee established by the canning code because they contemplated only minimum standards.

N.R.A. apparently intends to take advantage of the present label situation. At a recent press conference, Armin W. Riley, food administrator, said: "If we can get enough pressure from these people who have been intelligent enough to cooperate (A. & P. and the chains) we can slap labeling requirements and standards in the canning code under a Presidential executive order. It must be feasible, because the large chains are willing to do it." Later, when asked if N.R.A. expected to do through the canning code what the original Tugwell bill sought, Mr. Riley replied, "I don't see why not."

Mr. Riley revealed that what he is seeking in the matter of standards are the grades of the Bureau of Agricultural Economics: A, fancy; B, choice; and C, standard. Asked whether he would seek extension of grades to other industries if he succeeded in getting them in the canning code, he remarked that he did not know yet.

Since about half the total pack of canned food is distributed under private labels of chain stores and large wholesale grocers, the N.R.A. has appointed chain-store and wholesale grocers' committees to advise it in adding standards and grade labeling provisions to the canning industry code.

Federal Relief Purchases Extended; Production Difficulties Develop

Federal buying of foodstuffs reaches higher proportions week by week. Not only have cattle purchases in the drought area been extended to a possible six to ten million head but great numbers of sheep and large quantities of rice and cheese have been added to the list. And as the relief canning progresses, the administration finds itself face to face with unforeseen production problems.

So far, close to four million cattle have been turned over to Federal Surplus Relief Corp. for canning. Purchases of sheep, which will be limited to the drought areas, have just begun, but they are expected to reach between four and six million head. In its move to relieve other food surpluses, F.E.R.A. has invited bids on fifty million pounds of rice to be packed in 2-lb. boxes, thereby calling, in one order, for more rice than ever before has been put up in cartons. It has also requested bids on three million pounds of American-made Swiss cheese in wheel or block style and in 2½-lb. loaves and on processed cheese in ½-lb. packages.

Meanwhile, the administration finds that the canning factories which it has rented and manned with work-relief personnel are not working out so well. Consequently, consideration is now being given to a plan under which the R.F.C. would extend loans to the owners of closed plants, which is expected to make for more efficient operation. If the canners have insufficient security, the loan would be guaranteed by the relief administration.

Another difficulty has been the piling up of fresh meat under the F.E.R.A. policy not to can loins and hindquarters but to put them in cold storage. This condition resulted in the decision that all parts of the beef could be canned. However, slaughter facilities have continued to outrun canning and there is considerable relief beef accumulating in cold storage.

Most of the beef canneries are State F.E.R.A. projects, although the federal relief agency has contracted some of the packing to the larger meat companies. In the State operations, the canning is either contracted to existing packers or done by State F.E.R.A. canneries employing relief workers. Most of the State F.E.R.A. canneries are existing facilities that have been leased, although a few small plants have been erected. The general policy, however, is to operate existing plants through contract or relief labor.

Besides canning beef and mutton, the State canneries also are putting up vegetables from administration garden projects.

CONVENTIONS

SEPTEMBER

1—National Pretzel Manufacturers' Association, annual, Penn-Harris Hotel, Harrisburg, Pa. Henry G. Burke, secretary.

10-14—American Chemical Society, semi-annual, Cleveland, Ohio, Dr. Charles L. Parsons, 728 Mills Bldg., Washington, D. C.

12-14—American Fisheries Society, annual, Windsor Hotel, Montreal, Canada. Seth Gordon, 919 Investment Bldg., Washington, D. C., secretary.

OCTOBER

8-13—United States Brewers' Association, Master Brewers' Association, United States Brewers' Academy and Wahl-Henius Institute, New York, N. Y. Also an exposition, Grand Central Palace, New York.

12-16—Institute of American Meat Packers, annual meeting and exhibit, Drake Hotel, Chicago, Ill. W. W. Woods, 59 East Van Buren St., Chicago, president.

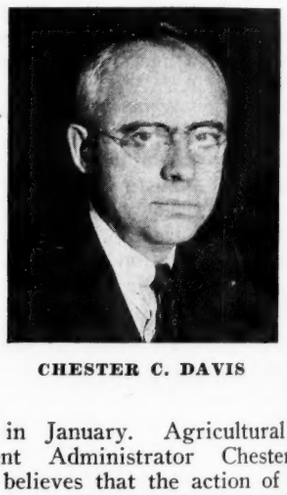
15-17—International Association of Milk Dealers, Statler and Carter hotels, Cleveland, Ohio. R. E. Little, secretary, 228 North La Salle St., Chicago, Ill.

15-20—Dairy Industries Exposition, Public Auditorium, Cleveland, Ohio.

18-20—International Association of Ice Cream Manufacturers, Hollenden Hotel, Cleveland, Ohio. Robert C. Hibben, excutive secretary, 423 Telegraph Bldg., Harrisburg, Pa.

Amendments Not Dead

The A.A.A. amendments which were suffocated in the last days before adjournment of Congress will be reintroduced when the legislative body convenes in January. Agricultural Adjustment Administrator Chester C. Davis believes that the action of Congress on these amendments will be dictated by the desires of the farmers and he predicts that no defense, however strong, "by an obstructive few members" will block the measures if the Congressmen see that the farm element wants the changes.



CHESTER C. DAVIS

The A.A.A. has been very anxious to have the amendments put on the statutes that court litigation over the licensing power of the administration may be avoided.

Unearned Discounts Violate Code, Canners Warned

Canners have been warned by E. G. Montgomery, executive secretary of the canning code authority, that they are violating the code when they allow unearned discounts for cash to wholesalers. Sec. 5, Art. 7 of the canning code provides that "no member of this industry shall allow a discount for cash unless such cash discount is earned by payment in accordance with such cash discount terms."

Canners are still receiving checks in payment of invoices with discounts for cash that have not been earned. When

such a check is marked "payment in full," the code authority advises the canner to return it with a request that a new check be drawn from which the discount has not been deducted. If the check is not meant for payment in full, the recommended procedure is to cash it and credit the buyer's account and then bill him for the amount of the unearned discount which is still due. If the buyer does not respond as requested, the canner has a valid claim for the unpaid balance.

AAA Steps Milk Prices Up; Acts on Other Licenses

In another move to aid drought-stricken farmers, the A.A.A. has increased the price which milk distributors must pay producers in eight Western marketing areas, amending the licenses to this effect. And the administration also has taken action recently on other licenses and marketing agreements, including those for dried skim milk, prunes and California cling peaches.

The Western cities affected by the increase in milk prices include St. Louis, Mo.; Tulsa, Okla.; Lincoln, Neb.; St. Paul and Minneapolis, Minn.; Port Huron, Mich.; and Wichita and Leavenworth, Kan. The increase ranged from 31c. per 100 lb. in Lincoln to 75c. in Tulsa.

A new license also went into effect in Boston, where the "flagrant disrespect" for its decrees has provoked the A.A.A. to court action. There the price was stepped up 41c. on Class 1 milk and 23c. on Class 2. Savannah, Ga., too, received a milk license.

The existing marketing agreement for the dry skim milk industry is up for amendment to permit the formation of a non-profit marketing corporation which will handle the surplus and render general service to the manufacturers.

A marketing agreement for the California dried prune industry has been tentatively approved and has gone to the industry for signature. It limits the quantity of prunes which handlers may purchase directly from growers and requires that substandard fruit, as well as a certain percentage of the standard grades, be turned over to a control board, this to be resold by the board for the account of the grower. This will enable the board to keep a surplus from glutting the market in good production years and to fill up any shortage in lean seasons.

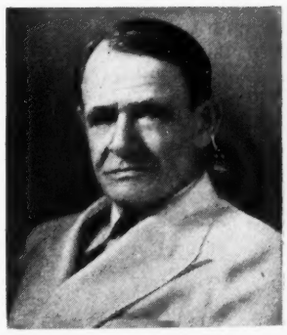
The 1933 license for California cling peach canners was terminated recently, and one covering the 1934 season was instituted at the same time.

Administration Shouts 'Profiteering' But Expects Little to Occur

Profiteering, that inflammatory word which the administration is publicizing with great vim, is at present only an imaginary bogey man, according to information obtained from government agencies concerned with the food industries. Acting on the old theory that the best defense is a good offense, the A.A.A., and even the Chief Executive, have issued warnings to the consuming public as a means of building up a resentment that will effectively check aspirations of those tempted to "make money from the drought." It is admitted by the vociferous government officials, however, that there is no expectation of a profiteering epidemic. Only individual cases are anticipated.

The supercritical A.A.A. consumers' counsel, Dr. Frederic C. Howe, has been checking price rises to date and even by his measurement the increases have not exceeded those warranted by increased cost of production. He has this to say about prices:

"The present rise in consumer prices, started in the last half of April, when some drought effects were first anticipated, had advanced the general level of food prices only slightly more than 3 per cent by the end of July. . . . All food products have not changed in price the same amount. Meats went up most, climbing 6.7 per cent during the period. Next are cereals, which increased 3.5 per cent, and dairy products, which rose 2.6 per cent. (These are the drought-affected products.) There was an average drop of 0.2 per cent in the prices of all other foods reported in the Bureau of Labor statistics during the period."



FREDERIC C. HOWE

It is in the spread between the farmer and consumer that the government will look for profiteering, "excessive widening" of this being cause for action. But this does not mean that manufacturers cannot sell at the higher prices brought about by the drought the goods put up at the comparatively low cost of the past months.

No special agency is to be set up to watch for profiteering. Dr. Howe will do the publicizing through his "Consumers' Guide," the press and the radio, giving details of price advances and allowing consumers to draw their own conclusions. Asked what other steps will be taken to prevent the practice, A.A.A. officials threateningly state that the Secretary of Agriculture has authority to license any processors, producers, or groups of same.

Meanwhile those with their fingers on the pulse of food distribution are complaining that the publicity given profiteering may be putting bad notions in the heads of retailers who could advance prices and blame it on processors and distributors. Some scattered complaints of profiteering are reported to have originated at this source.

Riley Wants Code Levies To Be Unrestricted

Producers of a number of food and grocery lines will have to help finance all code authorities under which they operate if Armin Riley, food division administrator of N.R.A., has his way.

Under a recent N.R.A. administrative order, X-36, it was provided that code members would be liable for assessment only from the code authority representing their principal line of business. Almost immediately, a number of food code authorities asked exemption from the order. Commenting on the situation, Mr. Riley declared that it would be his policy to recommend that distribution industries be kept under one assessment, but that manufacturers be levied upon by the code authorities under which their various lines bring them. "Just because a company is big enough to be in a number of manufacturing trades," he said, "there is no reason why it should get out of any assessments."

Asked if there were to be any limit on the number of code authority assessments one company would be required to pay, the food division chief replied, "as many as the separate trades they are in."

Will Investigate Decline In Export of Flour

To determine in detail the reasons for the 9,000,000-bbl. decline in the exports of flour, an investigation has been launched by the Food Division of the Bureau of Foreign and Domestic Commerce. This investigation will furnish facts necessary for negotiation of reciprocal trade agreements which include flour, and may enable the Bureau to remove some of the causes for the loss.

Among the 48 countries which bought

BROADCASTING DEATH

Dr. Thomas J. Headlee, New Jersey State Agricultural Experiment Station, with a 100-watt radio insect destroyer which he uses for experimental work. "Bugs" placed between the plate electrodes die in about 30 seconds from fever generated in their bodies by the high-frequency radio waves. The instrument has a frequency range of 1,000,000 to 25,000,000 cycles and is very similar to a regular radio transmitter except that the aerial and ground leads connect to the aluminum- plate electrodes. A frequency of 3,000,000 cycles with a potential of 4,000 volts per linear inch has been proved quite destructive to insects, yet harmless to plant life.

flour in the United States in 1930 only one, Italy, bought more in 1933 than in 1930. Exports to Europe fell from 5,178,494 bbl. to 596,593. Exports to the United Kingdom practically ceased; they totaled 1,535,942 bbl. in 1930. Exports to the Far East fell from 3,077,569 bbl. to 905,194; fifty-five per cent of that total was represented by exports to the Philippines. Business to Central America held up better, with 660,138 bbl. exported in 1930 and 494,361 bbl. exported in 1933. Trade with other North American countries fell from 2,600,645 to 1,705,174 bbl. South American business climbed from 1,602,265 bbl. to 440,836 bbl.

May Milk the Dairies

That the A.A.A. has designs against the dairy industry is indicated by unofficial, though reliable, reports which break out from time to time. The latest has it that the administration, not satisfied with the local licensing system, is planning an extensive federal control project for next year. Little opposition is expected from the producers, who killed the program proposed last spring, because of improved conditions in the industry. And while the large dairy companies may kick over the traces, the present Federal Trade Commission investigation is expected by officials to furnish the administration with enough ammunition to squelch this opposition.

FACA Drafts Regulations For Wine Industry

Regulations looking toward more protection for the wine consumer have been drafted by Federal Alcohol Control Administration. The proposed restrictions stipulate that imported wines cannot be trademarked with the name of a famous wine province unless it actually comes from that particular section. This applies to such wines as Champagne and Burgundy.

The contemplated regulations also prescribe standard bottle sizes for both imported and domestic wines. These include one gallon, one-half gallon, quart, four-fifths quart, pint, one-half pint and one-quarter pint. In addition, bottles for sparkling wines may continue to hold $\frac{13}{18}$ quart or $\frac{13}{18}$ pint.

The F.A.C.A. also would require additional description of "dry," "sweet," "fortified dry," "fortified sweet," "sparkling" and "sparkling sweet," and would make it necessary for wine not made from grapes to be labeled with a statement to that effect. Further, if the wine is too high in volatile acid content, this substandard quality must be designated on the label.

Milk Consumption Low In Southern Cities

Dairies in Washington, D. C., Charleston, S. C., and New Orleans, La., have much more of a potential market than they are now selling. All three of these cities have a per capita milk consumption far below the national average, figures obtained in the A.A.A. consumer counsel survey show. In Washington, fresh milk consumption amounts to less than 0.4 pint per day per capita among the 416 families covered, while the annual consumption of evaporated milk per person is 14.15 lb., against the national average of 15. Only a little more than 0.1 quart is purchased per day per person among the families covered in Charleston, while 0.3 pint is the per capita consumption among the 441 families investigated in New Orleans.

The survey in these cities is part of an investigation that covers 61 municipalities.

Several Strikes Settled In Food Industries

Striking workers were pacified in a number of food industries during the past month, and but little new labor trouble was reported.

A ten-day strike at the plant of Vincennes Packing Corp., Vincennes, Ind., ended after the company threatened to move its equipment to other plants, and balking employees in Kroger Grocery & Baking Co.'s packing plant, Cincinnati, went back to work at the termination of what union officials called a lockout against them. Things were not so rosy, however, at the David Davies Packing Co. plant, Columbus, Ohio, where workers called their second recent strike, threatening a boycott against the company.

In Terre Haute, Ind., a four-week strike at Home Packing & Ice Co. ended when the company granted wage increases of 5c. an hour to men and 10c to women, with seniority rights for all employees below the grade of foreman.

In St. Louis, the 300 workers in the macaroni plants of V. Viviano & Bros., Italian Mercantile Manufacturing Co. and Mound City Manufacturing Co. receded from their demands for a 10 per cent increase in wages but continued to hold out for union recognition. This strike began July 16. Also from St. Louis comes a report that the local plants of Anheuser-Busch, Inc., have become 100 per cent unionized.

HORS D'OEUVRES

THE ADOPTION by Westinghouse of the trade name "Tuffernell" for a new kind of wire makes us wonder why some enterprising food manufacturer doesn't bring out a product labeled "Gooder-n-ell."

•

AFTER READING in last month's issue the article "Where Does the Gas in Roasted Coffee Come From?" one of our observing subscribers asks "Where does the gas in roasted coffee go?" adding that most of it must go into coffee advertising. Check!

•

EARLY SETTLERS in the Ohio Valley drove their steers across the Alleghenies and sold them in Baltimore at a price based upon waistline measure. There probably wasn't enough of the steer left to tip the scales and, besides, there weren't any scales.

•

ICE CREAM packed in sausage casings and sold by the foot, or by the yard, was demonstrated at the Leipsic Fair. Sounds like a butcher's version of MelOrol.

•

A ST. LOUIS macaroni manufacturer says that stench bombs were thrown into his factory on Aug. 7 and 8. Maybe one of the Italian workmen took garlic in his lunch on those days.

•

MRS. MARTIN JOHNSON, wife of the big game hunter, threw a pan of white flour in a jungle lion's face and the beast walked away in disgust. He must have been one of Bernarr Macfadden's whole-wheat converts.

Cottonseed-Oil Industry Refutes FTC Charges

Charges of price fixing and restraint of competition have been hurled at the cottonseed-oil industry of the South by the Federal Trade Commission, and in reply, National Cottonseed Products Association has hurled at the F.T.C. a collection of statistics refuting the charges. The association figures show that competition has been so severe and unrestrained that capital assets of many of the mills have been depleted and that the mills have suffered a net loss of $371,845 during the five-year period 1927-32. The association states that the price publicity plan upon which the charges were largely based was, in 1928, ruled by the Federal Trade Commission as being necessary as a means of preventing price discrimination and other unfair methods of competition.

The charges abruptly terminated negotiations for the completion of the cottonseed products code, and the industry is anxious to pacify the F.T.C. so that it may go ahead with this pact.

Many Foods Take the Air

Food advertising has taken to the air in a big way, reports from National Broadcasting Co. and Columbia Broadcasting System indicate. At the close of August, 29 food manufacturers were putting on nation-wide broadcasts over the National chain, some conducting more than one program. And as of Aug. 21, nine new contracts have been signed. Some of the larger food advertisers with National include Armour & Co., Carnation, General Foods, General Mills, A. & P., Kellogg, Kraft-Phenix, Pillsbury Flour Mills, Standard Brands and Swift & Co.

Columbia Broadcasting System also has many food accounts and it reports several new contracts for fall. Campbell Soup Co. will go on late this month or early in October, Cream of Wheat will begin Oct. 7, Cocomalt goes on Sept. 3 and Libby, McNeill & Libby will start some time this fall. Borden Sales Co. is now on and plans to continue, as does Ward Baking Co., Hecker H-O, General Mills, General Baking Co., Pet Milk Corp. and Pillsbury Flour Mills.

To Fight Ban on Candy

"Break-and-take" confectionery manufacturers refuse to take it. Instead of accepting the government's recent ruling against the manufacture of this type of confectionery, the candy makers have organized under Prize Confectioners' Association to fight the ban. According to Irving H. Fairchild, secretary of the group, the N.R.A. ruling will be challenged in the U. S. Circuit Court of Appeals in the Chicago district.

Drought Spoils Beverages

Much spoilage of carbonated beverages by contaminated water supplies is resulting from the widespread drought. To minimize this trouble, American Bottlers of Carbonated Beverages has urged members of the industry to submit samples of their goods for laboratory analysis. The association offers to make these tests for a very small compensation.

Packers' Hearing Postponed

To permit the defense to study the evidence presented by the government, the Department of Agriculture's hearing on the alleged price-cutting combine by meat-packing houses in the South has been postponed until Sept. 4, at Memphis. This hearing has dragged on for three months, the earlier sessions being held at Jackson, Miss., and Birmingham, Ala.

So far 250 witnesses have been summoned, 31,000 invoices and 1,000 exhibits have been examined and 750 typewritten pages of testimony have been compiled.

Hydrometers for Bottlers

To meet a need of long standing in the beverage industry, American Bottlers of Carbonated Beverages has made available standard hydrometers which will measure accurately the sugar content of beverages and syrups and which will test citric-acid solutions. Such hydrometers as formerly could be had for this work were either too small or too large, did not cover the proper ranges, and many times were inaccurate.

Members of the association will receive a 50 per cent discount on the price of the instrument and the graduated cylinders that go with it. They are urged to submit orders promptly, as an early quantity order is necessary.

CONCENTRATES

A simplification program approved by the Bureau of Standards reduces the number of can sizes for fruits and vegetables to 27. . . . Labels for olives must not bear illustrations of the fruit which are larger than the fruit itself, the Food and Drug Administration recently ruled. . . . Semi-monthly reports on the quality of grain crops will be issued during the peak of the new crop market movement each year by the Bureau of Agricultural Economics.

The Southern rice industry is introducing a national educational campaign to increase consumption of the cereal, special emphasis being placed on the territory north of the Mason-Dixon Line. . . . The Philadelphia Milk Exchange will conduct an advertising campaign with funds accruing from savings to dairies in salvaged bottles collected by the exchange.

Until Oct. 31, the mackerel catch is to be limited so as to approximate the consumer demand of 2,200,000 lb. a week. . . . Twenty-one consignments of crabmeat were seized during July by the Food and Drug Administration because of contamination with filth.

Pure Food and Drugs Research Foundation, Inc., has been chartered in New York, N. Y., to foster scientific research in connection with food and drugs. . . . Six-weeks courses in dairy manufacturing will begin Jan. 7, at Pennsylvania State College, State College, Pa. . . . Dairy short courses also will be held at the University of Minnesota this fall and winter.

AS MILLIONS LOOK ON

Swift & Co. demonstrates the value of lard as shortening to the millions passing over its Bridge of Service at A Century of Progress. Almost 70 per cent of the people entering the gates of the fair have crossed the Swift bridge, the number amounting to about 4,000,000 early in August. The big exhibits of Armour & Co. and Wilson & Co. likewise have drawn huge crowds.

MEN . . . JOBS . . . AND COMPANIES

Industry

ARMOUR & Co., Chicago, is planning to build a cattle slaughtering plant at Union Stockyards, to occupy about one city block and to cost about $1,000,000. Eleven thousand head are to be handled weekly.

BEECHNUT PACKING Co., Canajoharie, N. Y., is building an addition to its plant at a cost of about $50,000.

CALIFORNIA BREWING CORP., San Francisco, is building a three-story structure costing about $100,000.

DURHAM (N. C.) ICE CREAM Co., INC., has completed repairs and improvements to its plant, costing about $12,000.

FOOD PROCESSING Co., INC., Philadelphia, has discontinued development work at its New York laboratory.

HIRSCH BROS., Louisville, recently completed a pickling and salting station at Hastings, Mich., replacing one burned there two years ago. The plant has an annual capacity of 50,000 bu.

JACKSON FLOUR & FEED MILL, Youngstown, Ohio, was destroyed by fire on August 6, at a loss of about $40,000.

LIBBY, MCNEILL & LIBBY, Chicago, is packing "drought" cattle under government contract at its Blue Island (Ill.) plant.

KANSAS MILL & ELEVATOR Co., Arkansas City, Kan., has been reorganized and renamed Arkansas City Flour Mills Corp.

KNOB VIEW (MO.) FRUIT GROWERS ASSOCIATION is completing this month a modern winery with a capacity of 165,000 gal., costing $20,000.

KRAFT-PHENIX CHEESE CORP., Chicago, will spend about $135,000 in improving its plant at Denison, Tex., and in erecting plants at Victoria and Bonham.

MORNING MILK Co., Salt Lake City, has fortified its evaporated milk with vitamins A and D.

ORESTES PACKING Co. and FRAZIER PACKING CORP., both of Elwood, Ind., have leased jointly a cannery at Alexandria, where the former will pack tomatoes and the latter tomato pulp.

PRINZ BAKING Co. plant, Owensboro, Ky., was damaged by fire August 1, at a loss of $25,000.

SHAWNEE (OKLA.) MILLING Co., destroyed by fire at a loss of $150,000, is to be rebuilt.

SIREN MILLS CORP., Chicago, manufacturer of chocolate and cocoa products, formerly owned and controlled by Russ Soda Fountain Co., Cleveland, has become an independently owned organization.

SNIDER PACKING Co., Rochester, N. Y., in line with the theory that canned foods should be consumed in greater quantities in 1934-35 than heretofore, is planning to begin canning operations in the Rio Grande valley near Brownsville, Tex.

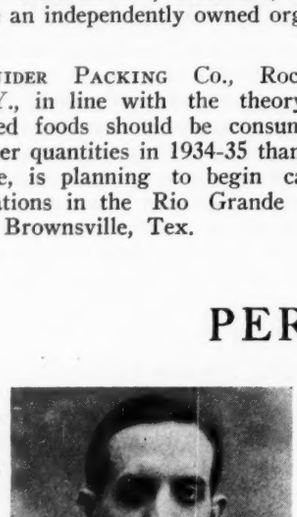
JOHN P. SQUIRE Co., Cambridge, Mass., has purchased the H. L. Handy Co. plant, Springfield, and will operate it, without change in organization, under that name.

SWIFT & Co. creamery and ice cream plant, Winona, Miss., was damaged by fire August 16, at a loss of $8,000.

TOVREA MEAT PACKING Co., Phoenix, Ariz., has leased the Southern Meat Packing Co. plant, Anaheim, Calif., where a branch unit will be opened.

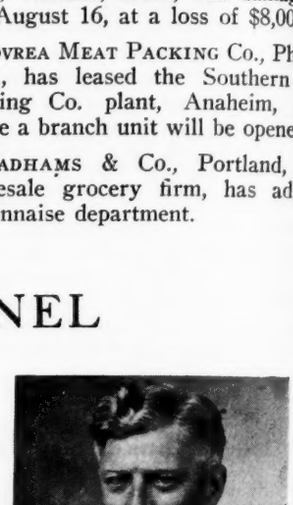
WADHAMS & Co., Portland, Ore., wholesale grocery firm, has added a mayonnaise department.

PERSONNEL



ARTHUR P. HELLWIG

Former research worker, von-Amerigen Haebler Corp., Elizabeth, N. J., he has entered the technical research division, American Maize-Products Co., New York, where he will engage in research in the development of new products and of new uses for products now being manufactured.



H. A. NOYES

Former director of research, Welch Grape Juice Co.; fellow, Mellon Institute of Industrial Research; and research assistant at the agricultural experiment station, Purdue University; he has been appointed managing director, Applied Sugar Laboratories, New York, his duties to begin Sept. 10.

FREDERICK R. BACHLER, formerly chief chemist, American Beet Sugar Co., Denver, Colo., is now general chemist for that firm.

JAMES F. BELL, president since 1928, General Mills, Inc., was recently elected chairman of the board. DONALD D. DAVIS, one of the co-organizers of General Mills, Inc., in 1928, was at the same time elected president.

J. L. BRENCE, formerly at the Montana State College creamery, Bozeman, is now with Home Creamery, Helena.

E. C. FALES and J. F. SHEEHAN are president and vice-president, respectively, of Fish, Inc., a subsidiary newly formed by Atlantic Coast Fisheries Co. to process, package and merchandise fish and fish products, with headquarters at Boston. Messrs. Fales and Sheehan were formerly with the fresh fish department, Great Atlantic & Pacific Tea Co., as general manager and merchandising manager, respectively. Russell Yelton, who recently returned to the parent company, will represent that firm and its subsidiary in the Middle West, with headquarters at Chicago.

J. S. FLAUTT, formerly manager, Majestic Milling Co., Aurora, Mo., is executive vice-president and general manager, Meyer-Blair Milling Co., Springfield, Mo., succeeding the late J. M. Blair.

WILL A. FOSTER, vice-president, Borden Farms Products Co. of Michigan, has become vice-president, Borden's Dairy Delivery Co., with headquarters in San Francisco.

CHARLES E. HERRICK, former president, Institute of American Meat Packers, has resigned as president, Brennan Packing Co., Chicago.

G. A. KALIVODA, former superintendent, National Tea Co. plant, Minneapo-

lis, is now with Seaman Baking Co., Superior, Wis.

FRANK A. KEMP, manager, Nebraska district, Great Western Sugar Co., has been elected vice-president of that firm.

GEORGE G. KESTIE, formerly with Keystone Dairy Co., Hanover, Pa., is now with McDonald Dairy Co., Flint, Mich.

W. P. KYLE is manager, Albers Bros. Milling Co., Portland, Oregon, succeeding D. J. Collins, resigned.

L. A. MALLON is manager, Armour & Co. plant, Milwaukee, replacing T. L. Robertson, transferred to the general staff, Chicago.

PRESTON MCKINNEY, vice-president and executive secretary, Canners League of California, has been appointed an adviser to the Industrial Advisory Board of N.R.A.

JAMES F. O'BRIEN, manager, cereal division, National Biscuit Co., New York, has resigned.

GEORGE M. O'NEILL, secretary, and Frank Slavin, factory superintendent, Loft, Inc., Long Island City, New York, have resigned.

EDWARD PALMER, Palmer Candy Co., Sioux City, Ia., is chairman of Zone 8, National Confectioners Association, succeeding Carlton H. Woodward, John G. Woodward Co., Council Bluffs, Ia.

J. LOUIS RUBEL, manager of Veribrite (Chicago) branch, National Candy Co., is now chairman, Zone 7, Industrial Recovery Division, National Confectioners Association, succeeding Ferdinand A. Bunte, Bunte Bros., Chicago.

PALMER W. SCHADE, vice-president, Best Foods, Inc., has become general manager of a newly formed Southern division of that company, including 11 states.

GEORGE SCHAEFER was elected president and EMMETT MARTIN reelected secretary-manager, National Food Distributors Association, at the recent Pittsburgh convention.

MAX H. SOBEL, former vice-president, Schutter-Johnson Candy Co., Chicago, is now executive vice-president and general manager, Nutrine Candy Co. and its affiliate, Superior Candy Co., both of Chicago.

E. M. STADEL, secretary of the Oregon Bakers Club, has been appointed state administrator of the baking code by the Department of Agriculture.

EDWIN T. STANARD, former vice-president and general manager, Stanard-Tilton Milling Co., St. Louis, has been elected president, succeeding his father, the late William K. Stanard.

HARRY STINER, former pest-control specialist, National Biscuit Co., New York, and author of a current series of pest control articles in FOOD INDUSTRIES, has accepted a position with Vacuum Sterilizer Co., Los Angeles.

WILLIAM TENNANT, former superintendent, W. R. Roach Canning Co. plants at Hart and Kent City, Mich., is now superintendent, Flavorite, Inc., canning plant, Muscatine, Iowa.

DONALD WHITE, director, American Institute of Food Distribution, resigned as of Sept. 1 to become managing editor and director of service, *The Voluntary and Cooperative Groups Magazine*.

CORRECTION

FRED B. CHILDS, erroneously reported (*Food Industries* — August, 1934) elected president of Libby, McNeill & Libby, was elected vice-president of that company.

DEATHS

WILLIAM H. BALLARD, 82, founder, Ballard Ice Cream Co., Indianapolis, at Battle Creek, Mich., July 29.

JOHN D. CANALE, 61, president, D. Canale and Co., wholesale grocers, Memphis, at Memphis August 17.

ROLAND O. DAVIS, 38, head of the baking department, William Hood Dunwoody Industrial Institute, at Minneapolis August 10. Beginning his practical experience at Regan Bros., Minneapolis, he was later connected with Pillsbury Flour Mills and the Ry-Krisp plant, Ralston-Purina Co., Minneapolis.

RICHARD F. DUNCAN, 66, sales manager, Continental Baking Co., at Memphis, July 24. He had been with his firm for 23 years.

GUSTAVE FOX, 76, president since 1907 of Waterloo (Wis.) Canning Co., at Waterloo July 25.

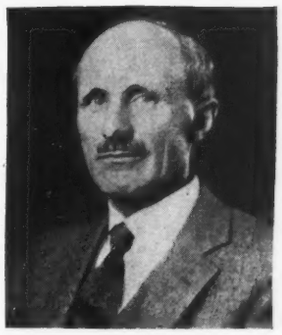
M. B. GRAFF, 62, chief chemist, bakery service department, Procter & Gamble Co., at Cincinnati August 1. Associated with this firm almost continuously since 1894, he developed commercial processes for the hydrogenation of oil and the production of hydrogen.

MARCUS S. HUFFMAN, 69, secretary-treasurer, Roanoke (Va.) Dairy & Ice Cream Co. at Roanoke August 9.

KARL J. KOCH, 51, president, Koch Beverage & Ice Co., Wapakoneta, Ohio, at Lima July 15.

MARTIN H. RENKEN, 77, who began M. H. Renken Dairy Co., Brooklyn, in 1888 with a small store and a horse and wagon which he drove himself, at Brooklyn Aug. 24.

GEORGE V. SHEFFIELD, 78, treasurer and director, Jensen Creamery Machinery Co., Bloomfield, N. J., at Old Orchard, Me., July 19. Member of the family which founded Sheffield Farms Co., he was director of Sheffield By-Products Co. when that firm was absorbed by National Dairy Products Corp.



M. B. GRAFF
P. & G. bakery research chemist passes

WILLIAM K. STANARD, 73, president, Stanard-Tilton Milling Co., St. Louis, at Coronado Beach, Calif., August 3.

CORNELIUS O. WATNEY, 34, vice-president and treasurer, Ogden-Watney Publishers, Inc., at Greensboro, Vt., July 7. In 1928 he helped to organize his firm and to start *The Glass Packer*. In 1930 *The Glass Container* was absorbed, and in March of this year *The Glass Industry* acquired.

Associated Industries

HENRY M. CHASE, consulting engineer, Worthington Pump and Machinery Corp., and inventor of improvements to steam and power pumping machinery, has retired after nearly 40 years with his firm and its predecessor, Deane Steam Pump Co.

FIRST MACHINERY CORP., New York, has established a plant planning department, including a staff of engineers, to assist plant superintendents and new entrants into the manufacturing industries in setting up and re-arranging production machinery and processes.

E. H. FORD, president, Read Machinery Corp., Inc., York, Pa., resigned, has been succeeded as general manager by C. F. Freed, vice-president.

L. S. STEPHENS, former vice-president in charge of production, Stephens-Adamson Mfg. Co., Aurora, Ill., has been elected president, succeeding D. B. Pierson, now chairman of the board.

TOLEDO BOTTLE CAP CO. has established at Mellon Institute of Industrial Research, Pittsburgh, a fellowship for research on paper milk bottle caps, bottle closures and the study and improvement of paper packages for food and dairy products. The incumbent is Marc Darrin, incumbent from 1923 to 1934 of the paper finishing fellowship sustained by F. N. Burt Co., Ltd.

BUSINESS TRENDS

Grains, Foods Spurt

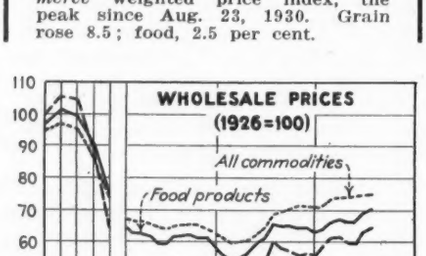
Agricultural and food commodity prices, under the impetus of reports of terrific drought damage and of possible shortages of certain foods, advanced sharply during the six weeks ending Aug. 25. Meats led the upward movement, hogs being quoted at their highest prices since the summer of 1930, and carried along lard, grains and feed. Lower industrial materials prices, such as for metals, lumber and hides, reflected still diminishing business activity.

Business activity continued gradually the decline begun early in July, and, although under last summer's level, remained well above that of two years ago. Steel reached its lowest level since early March, but electric power production, automotive activity and petroleum refinery output were fairly steady. Distribution figures also maintained rather even levels. To some observers, certain aspects of the current situation during this period pointed to stabilization.

The Business Week Index of business activity for the week ending Aug. 18 stood at 58.1 per cent of normal—3.0 per cent below the July 14 figure.

Wholesale prices reported by U. S. Department of Labor for the month ending Aug. 18 rose 1.0 to 76.1 per cent of the 1926 average from the July 21 figure. The highest point since February, 1931, was reached during the week ending Aug. 18. Farm products during the month were up 2.8; foods, 2.9 per cent.

All commodities during the month ending Aug. 25 advanced 2.8 to 79.0 in the New York *Journal of Commerce* weighted price index, the peak since Aug. 23, 1930. Grain rose 8.5; food, 2.5 per cent.



Crop Forecast Emphasizes Severity of Drought

Drought devastation and its long-range effects on food supplies became increasingly apparent in the forecast of the Crop Reporting Board as of Aug. 1, in which production of corn this year was estimated at 1,607,108,000 bu., only 49.1 per cent of a normal crop. This crop would be the smallest since 1894 and 22 per cent less than the average for the past thirteen years. With the crop's condition further declining during the ten days between the estimate and the issuance of the report, it is thought that the total harvest will be even less than forecast.

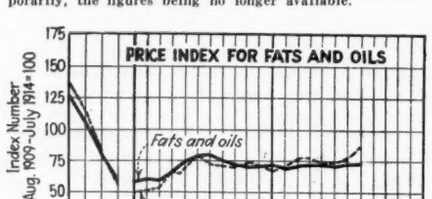
Comparing the above figure with that of the forecast of July 1, it will be seen that the loss during the month of July aggregated 500,000,000 bu., or about 17,000,000 bu. a day. Since there is a subnormal reserve from last year's crop of 2,343,883,000 bu., it has been predicted that slaughter of livestock and curtailment of milk production will be necessitated at a greater rate than heretofore, because of the lack of feed grains, forage and silage.

One optimistic note in the grain report was the increase of 6,000,000 bu. to 490,000,000 bu. in the wheat forecast over the July 1 estimate. The increase occurred in the forecast for winter wheat, that crop being put at 400,000,000 bu. In view of the small estimate for the durum wheat crop this year, several milling concerns are reported to have contracted for 500,000 bu. of Canadian durum. One shipment of 233,000 bu. is said to have been imported already, with more to follow.

Wheat production in Canada is estimated by the Bureau of Agricultural Economics to be about 50,000,000 bu. below last year's output; seventeen European countries are expected to harvest about 350,000,000 bu. less than in 1933.

BASIS FOR THE CURVES

Retail food prices, factory employment, factory payrolls and wholesale prices are based on indexes of the Department of Labor. Cost of living index is that of the National Industrial Conference Board. The electric power consumption graph is being omitted, at least temporarily, the figures being no longer available.


PRICE INDEX FOR FATS AND OILS
Index Number Aug. 1909-July 1914=100
Fats and oils
All farm products
1929 1930 1931 1932 1933 1934

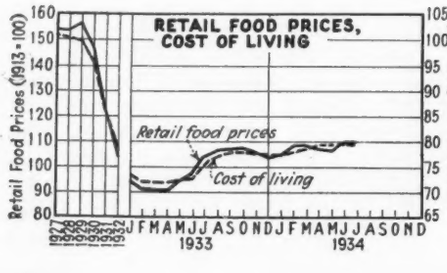
"Good" Year Indicated For Canning Industry

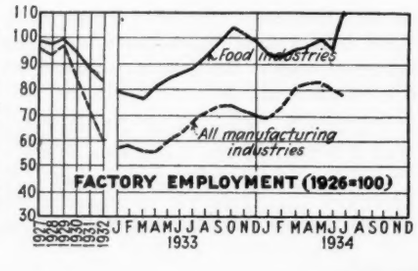
Higher prices accompanied by more than average demand for canned foods and reduction in output brought about by the drought seem to point to another "good" year for the canning industry. If the year 1934 does prove to be a good one for canners, it will be in spite of the theory that only one year of every five is "good" and in spite of the fact that 1933 was considered that one.

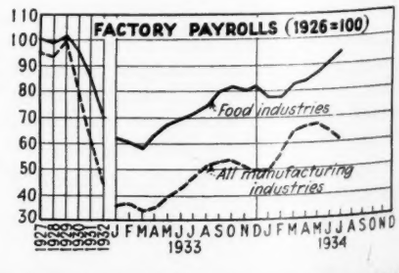
With distributors' stocks much lower than normal on July 1, as pointed out elsewhere in this section, and with fears in some sections of the country that there may be shortages of certain foods or unreasonably high prices, a rush to stock up with canned foods has been taking place. Reports from the Mid-West say housewives are buying in quantities to avoid higher prices to come, while retailers push canned food sales with more vigor than observed heretofore. At the same time, national distributors are said to be increasing their forward commitments at advancing prices.

If canning crops had not suffered from the drought, along with other competing agricultural products, the outlook probably would have still been favorable, though not so "good" as it appears to be now; for, on the basis of acreage increases over last year for almost every crop, a theoretical surplus would have resulted. But with the reduction of probable production to almost normal figures, the surplus is non-existent and the demand for canned foods, as well as for all foods, better than normal.

The following table shows how, in view of the 30 to 60 per cent increases







in acreage planted to the six crops, probable production has been reduced, as of Aug. 1:

	Condition Per Cent of Normal	10 Year Av. Aug. 1 1923-32
Sweet corn	64.5	77.5
Tomatoes	71.3	78.6
Beets	68.7	77.8
Cucumbers for pickles	74.8	77.3
Snap beans	64.4	74.4
Cabbage for kraut	72.8	82.4

Food Consumption Rises

Increased consumption of most foods for the first time in the past decade is indicated by results of a survey of food consumption in 2,500 hotels and restaurants by the Food Service Research Bureau of Ahrens Publications. Of the 142 items covered, the survey shows that 80 were consumed in greater quantities during 1933 and the first six months of this year; and 22 foods in smaller amounts; 40 foods neither increased nor decreased during the period. Increases in consumption of meats and sea foods, bakery products, dairy products and vegetables seem to indicate a return to the heavier foods, although sandwiches, salads and soups also showed considerably greater consumption.

Canned Food Stocks Down

Canners' and distributors' stocks of seven canned foods items on July 1 were substantially lower than on the same date a year ago, according to the second quarterly report issued by the Bureau of Foreign and Domestic Commerce. Although the movement out of canners' hands was less than for the second quarter of 1933, distributors' holdings were reduced about 31 per cent more than during the second quarter last year. Distributors' stocks of peas, corn, tomatoes, green and wax beans, peaches, pears and pineapple were 23 per cent smaller than on July 1 last year and 19 per cent smaller than on the same date in 1932. During the first six months of this year, distributors' stocks have decreased from the largest figure (Jan. 1) since 1931, to the smallest figure for any quarterly date (July 1) since 1931, when the quarterly surveys were begun.

Dairy Products Situation Creates Dilemma

Rising prices of dairy products, resulting directly from drought damage to herds and pastures, have created a rather delicate problem for the administration to solve. With prices of domestic products already above world prices and expected to rise still more, so that imports might be economically advisable, the administration is faced with the necessity of boosting the tariff on imported milk products, if it is to pursue its paternalistic attitude toward the farmer. But in doing so it would lose the power to check the price rises through the threat of importation and would depart from its protective attitude toward the consumer.

The situation is further complicated by the steady decline in production of milk per cow for the first six months of this year and the apparent continuance of the decline for the next several months. For example, butter stocks on July 1 were approximately 25 per cent below the 1929-1933 average for the same date. In addition, while the price of butter fat has risen slightly, prices of feed grains have advanced rapidly, as pasture and grain crop reports grew more and more pessimistic.

CONSTRUCTION NEWS

	Pending (thousands)	Awarded August (thousands)	Total Awarded 1934 (thousands)
Bakery Products	$75	.....	$303
Beverages	928	$266	7,234
Canning and Preserving	153	64	1,098
Confectionery	.....	.....	133
Grain Mill Products	2,563	175	3,670
Ice, Manufactured	60	.....	58
Meats and Meat Products	704	68	601
Milk Products	126	93	1,420
Sugar	.....	45	105
Miscellaneous	296	168	684
Total	$4,905	$879	$15,306

INDICATORS

CANNED VEGETABLES, except tomatoes, have risen 10 per cent and canned fruits 15 to 20 per cent over early May prices, states the *Wall Street Journal.*

BOTTLED FLUID MILK PRODUCTS distributed through retail outlets are estimated to require about 12,000,000,000 caps of various styles every year, with 100,000 lb., or 1½ carloads, of paper required daily for their manufacture.

COLD-STORAGE HOLDINGS of all meats on Aug. 1 were about 140,000,000 lb. less than on the same date last year and about 60,000,000 lb. less than the 1929-1933 average for that date. Holdings of lard were 10,000,000 under those of the previous Aug. 1, but more than 50,000,000 lb. above the 1929-1933 figure for that date.

JAPANESE CANNED TUNA shipped to the United States during the first six months of this year totaled 105,265 cases, nearly 90 per cent of total exports of that product.

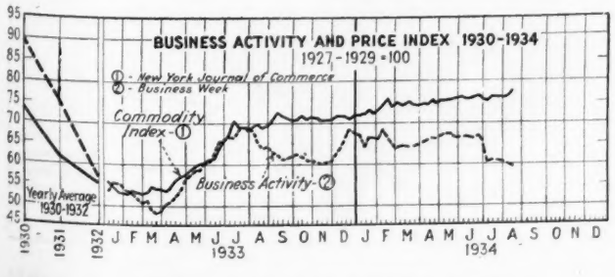
FACTORY PRODUCTION of fats and oils for the three-month period ending June 30, exclusive of refined oils and derivatives, was 1,007,247,632 lb., about 36,000,000 lb. less than for the same period of 1932. Cottonseed oil output was nearly 100,000,000 lb. less; corn oil about 6,500,000 lb. more; and soybean oil about 2,500,000 lb. less than in the 1932 period.

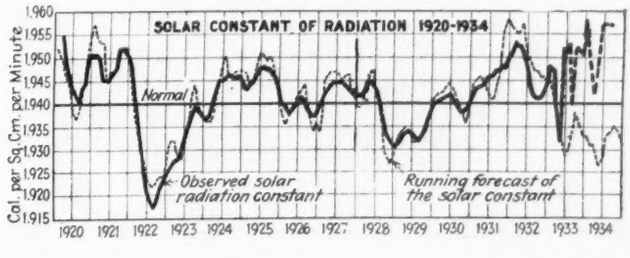
PRODUCTION OF CORN SYRUP and mixtures of corn and other syrups in 1933 was 1,066,363,395 lb., about 86,000,000 lb. more than in 1931. Production of cornstarch in 1933 was about 235,000,000 lb. greater than in 1931.

EXPORTS OF FRUIT JUICES, fruit syrups and flavors for soda fountains to the Far East during 1930-1933 increased from 31,508 to 60,139 gal.; mineral water exports during the same period rose from 452 to 11,725 gal. These figures are approximately one-third and one-sixth, respectively, of the total exports of the two groups.

FLOUR PRODUCTION in about 90 per cent of the mills in the principal milling centers during July totaled 4,760,259 bbl., 918,924 bbl., or 16 per cent, less than in July, 1933.

BEEF PRODUCTION for the first six months of this year rose to 2,500,000,000 lb., more than 20 per cent greater than for the same period of 1933, and veal production rose to 314,000,000 lb., 34 per cent above the figure for last year. Pork production, however, fell to 2,850,000,000 lb., about 8 per cent below last year's figure.




SOLAR CONSTANT OF RADIATION 1920-1934
Normal
Observed solar radiation constant
Running forecast of the solar constant
Cal. per Sq. Cm. per Minute

FAR-REACHING DROUGHT EFFECTS

Outstanding factors appraised for corn, hogs, cattle, beef, milk, and milk products

DROUGHT effects cannot be quantitatively estimated by anyone. Many of the movements initiated already are still of indeterminate magnitude. Accurate forecasting at this time is well nigh impossible. Nevertheless, there are certain factors, reasonably definable, whose consequences can be anticipated with useful accuracy.

First to deserve attention is the feed question. That there is a national feed shortage is certain. That there is practically no feed at all in many areas is even more evident. This means a surprising geographic shift in sources of supply for meat, milk and milk products. Perhaps the changed geography will in the long run prove more important to the food industries than any matters of price or present profit.

The corn supply is so short and its price is so high, relative to pork, that continued feeding of hogs is unprofitable. Hence the much more than normal flow to market is likely to continue well into the fall, perhaps until the first of January. On this basis, the best-informed guess is that retail pork prices are not going to advance alarmingly before January, except through speculation or inflation.

As it takes 9 bu. of corn to finish 100 lb. of hog, and corn is at 75c., the feed bill alone is $6.75 per 100 lb. of animal. The normal ratio between corn and hogs is 11.4. With the prevailing price of corn this means that pork might be $8.50 per hundred. However, a doubling of the price on the hoof from $4 of last spring is expected by government men to result in only about a 25 per cent increase in pork at retail, due to lack of consumer purchasing power.

Supplies for 1935 slaughter are another matter. The 1933 fall pig crop was 8 per cent below normal. The spring crop this year was 28 per cent below a year ago. The 1934 fall pig crop will be more than 40 per cent—probably 45 per cent—below normal. Total pig population ready for finishing in 1935 will, therefore, be much under the average of recent years. Even with large increases in spring farrowing, a restoration to normal levels cannot occur until 1936. Next year's pork-packing business volume is likely to be small. Prices, however, are another matter.

A greatly above-normal cattle population of last year has dwindled about to normal already. Even the government does not know on any particular day how many cattle have yet been bought. It will be mid-September before useful new census results can be had. For the present, however, a few conclusions are safe.

The supply of well-finished cattle in 1935 will be below normal. This may not result in price rises as much as usually would follow, because labor's purchasing power has not advanced adequately. And meat prices depend quite as much on general purchasing power as on quantities in supply.

Production of milk is likely to be curtailed in many milksheds below normal consumption, even for hard times. A complete readjustment of milk movement may follow. The strain on old marketing practices will be tremendous. Some artificial limits based on public health regulations may well disappear. If they do not, there will be public clamor in the competitive comparison between milk prices in near-by cities.

Fall rains in many territories, restoring pasture to fair condition, might eliminate a great deal of the prospective difficulty. If such rains do not come and pasture conditions do not improve *markedly* by mid-September, then milk prices are likely to run away. This is the point at which government intervention in price matters may first come.

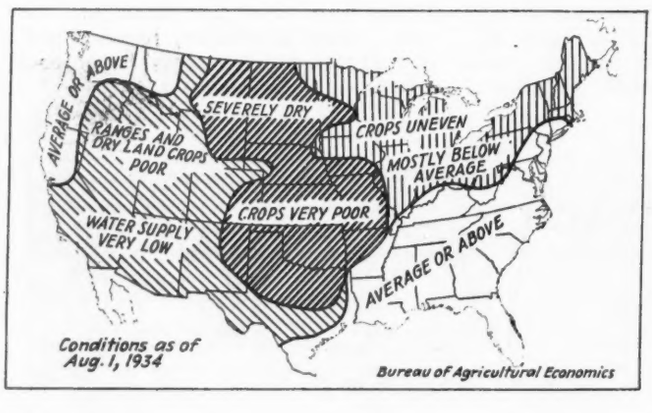
Carry-over of canned corn, peas, tomatoes and snap beans into 1934 packing season was smaller than normal. As this year's pack of all four vegetables appears to be about equal to the consumption average for the past five years, there is little likelihood of building up stocks unless consumption should fall below average. Nor is there any great likelihood of shortages with skyrocketing prices unless one of two new demands become excessive.

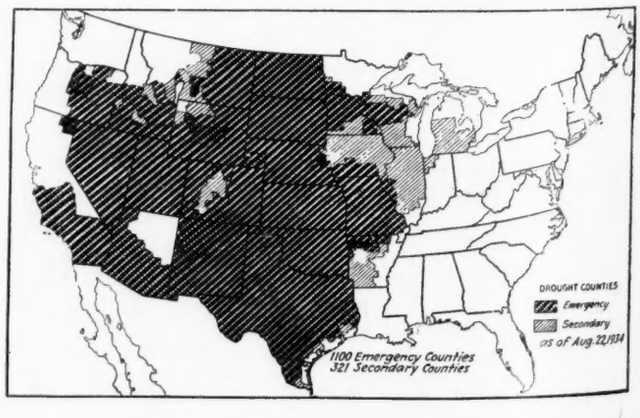
The two new demands potentially threatening the market are: (1) An unusual demand from those who, on the farm or from home gardens, normally lay in a winter's supply of root vegetables and fruits or home canned goods. This year there apparently has been little opportunity for such farm and rural home storage. (2) Shortages of fresh vegetables (or poor quality) are anticipated. Continuance of that factor diverts much urban home trade to canned goods earlier than usual, and presumably more extensively through the winter season.

Offsetting these two trends which tend to increase consumption, is the all-important fact that gross factory payrolls are still below normal this year. Hence public buying power is subnormal, and canned goods, as well as everything else, suffers accordingly. Still more important is the political consideration as to what the government will do about prices if they appear about to get out of hand.

Agricultural conditions as graphically presented in U. S. crop report of Aug. 10 explain the shift of cattle grazing and feeding to those sections of the United States not formerly associated with the commercial production of meat and dairy products. Much of the "emergency drought" territory has had adverse feed crop conditions for the past several years. The subsoil is almost wholly without moisture. Only continued slow and soaking rains this fall and heavy snows this winter will give relief.

In some sections of the north Middle West even an abundance of moisture will not bring relief. They are the districts from which productive top soil was removed during dust storms last spring.





CANDY SALES BOUNCE FROM DEPRESSION LOW

Penny and plain package goods lead upturn

WORRIES of confectionery manufacturers over the decline in volume and value of sales that continued through the depression would appear to be at an end. A survey of sales and distribution trends of the confectionery industry by the Department of Commerce shows an increase of 4.7 per cent on a volume basis during 1933[1] (Table I) and a jump of 22.3 per cent in value of sales for the first six months of 1934[2] (Table IV).

Confectionery prices dropped throughout 1933, decreasing sales by 1.8 per cent on a value basis, despite the increase in volume. The trend downward, however, had definitely slowed up, anticipating the 1934 upturn, as is evident when the decline of last year is compared with the 19.6 per cent drop in dollar sales between 1931 and 1932.

Of the various types of confectionery and chocolate products, penny goods contributed most to the 1933 revival of sales volume (Table II). Poundage of this class jumped 34.4 per cent, while sales value went up 20 per cent. Apparently, many manufacturers failed to take advantage of the popularity of this item, for the number of concerns making penny goods declined from 216 to 208.

The other outstanding item in the 1933 upturn was plain package goods. It was the only other item to experience an increase both in volume and value of sales, the former being up 7.4 per cent and the latter, 6.1 per cent. And for the third consecutive year, the number of manufacturers making this type of confectionery has increased, reaching 234 last year.

There were three items whose volume increased in 1933 but whose value registered a drop. These include chocolate bulk confectionery, bulk confectionery other than chocolate, and molded chocolate bars. The volume increases in the sales of these numbers and of penny and plain package goods, together with a decrease in the sales of fancy package goods, show an increasing demand for confectionery, but only for those items that offer large value for the consumers' money. "Luxury" goods found few takers.

The confectionery distribution picture changed somewhat during 1933, the jobbers obtaining 57.2 per cent of total sales after having remained stationary at 53.7 per cent for the two previous years (Table III). This increase came rather equally from the other outlets, although direct sales to independent retailers showed a somewhat greater percentage loss.

A shift occurred in the average number of accounts and average sales per account, there being a considerably smaller number of chain-store accounts per firm and, consequently, a larger average annual sale per chain-store account during 1933 than in 1932. While this is thought to be due in part to a faulty report in 1932 on the part of one manufacturer, it still signifies a trend.

As to the condition of business in different parts of the country, it is significant that the manufacturers in the various States registered increases in every instance during the first six months of 1934 as compared with the same period of the preceding year. Manufacturers in Texas experienced the greatest increase for the period, their sales jumping 42.5 per cent. Washington manufacturers were a close second with 41.7 per cent. Considered by regions, manufacturers in the South enjoyed the greatest improvement in dollar sales during the first half of this year, their average rise being 28.8 per cent. Those in the Northwest came second with 25.4, while concerns in New England were next with 23.8 per cent. Part of the early 1934 improvement, which averaged 22.3 per cent for the entire country, undoubtedly came from increased prices under the New Deal. However, rising prices could not account for it all, so there must also have been a substantial improvement in volume sales as well.

With prices and volume both on the upgrade, confectionery and chocolate manufacturers have occasion to feel that the depression is easing off and that the future holds something besides downward-sloping sales curves.

[1]Based on figures from 386 representative manufacturers.

[2]Based on figures from 330 manufacturers.

Table I—Sales of Confectionery—All Products Combined

Definition	1933	1932
Number of manufacturers reporting	386*	387*
Sales:—Pounds (thousands)	1,204,146	1,149,819
Value (thousands)	$166,191	$168,972
Average value per pound	0.138	0.147
Average sales volume per firm	430,546	436,621

*Two manufacturers combined in 1933.

Table II—Sales of Confectionery and Competitive Chocolate

Product	1933 Pounds	1933 Value	1932 Pounds	1932 Value
Plain package goods	101,932,534	$26,054,999	94,895,502	$24,450,021
Fancy package goods	11,221,846	7,730,422	13,181,986	9,255,803
Chocolate bulk confectionery	113,437,275	14,084,990	112,674,565	16,306,010
Bulk confectionery other than chocolate	283,536,158	26,653,850	277,436,610	27,816,882
Molded chocolate bars	98,825,937	18,219,544	95,543,373	19,766,345
Chocolate-covered bars	305,206,143	36,958,822	309,629,480	37,216,973
Other bars	24,413,157	3,892,312	30,178,865	4,444,141
5 and 10 cent packages other than bars	54,754,830	8,952,513	59,371,505	10,103,846
Penny goods	210,818,465	23,643,211	156,906,649	19,612,214
Totals	1,204,146,345	$166,190,663	1,149,818,535	$168,972,235

Table III—Sales by Types of Distributors

Method of Distribution	1933 Manufacturers' Sales Value	1933 Per Cent of Total	1932 Manufacturers' Sales Value	1932 Per Cent of Total
Through jobbers	$88,717,733	57.2	$93,605,692	53.7
Direct to retailers:				
Chain stores	29,196,886	18.8	34,435,239	19.7
Independents	22,051,364	14.3	28,063,197	16.1
Direct to consumers:				
Through own store	14,698,838	9.5	17,709,117	10.2
Mail order	356,556	0.2	472,138	0.3
Total	$155,021,377	100.0	$174,285,383	100.0

Table IV—Sales of Confectionery and Competitive Chocolate Products First Six Months 1934

States	First Six Months 1934	Per cent Change
New England		
Mass., R. I., Conn., Me., Vt.	$8,410,473	+23.8
Eastern		
New York	8,567,355	+26.5
Pennsylvania	9,658,941	+13.1
Md., N. J., Dela.	1,363,347	+12.5
Total	19,588,705	+18.6
Southeastern		
Ga., Va., N. C.	1,908,795	+19.8
Central		
Illinois	21,942,006	+ 8.5
Ohio	1,329,084	+20.6
Ind., Ky.	1,370,957	+19.6
Mich., Wisc.	2,027,380	+29.2
Total	26,676,062	+10.9
Southern		
Tennessee	1,265,980	+25.7
Texas	1,123,076	+42.5
Ala., Ark., La., Miss.	547,887	+12.8
Total	2,936,665	+28.8
Midwestern		
Missouri	3,329,968	+12.3
Iowa	942,347	+27.8
Colorado	391,052	+24.1
Kans., Nebr., Okla.	412,265	+28.8
Total	5,075,319	+17.0
Northwestern		
Minn., N. D., S. D.	1,108,678	+25.4
Western		
California	2,022,507	+15.1
Washington	782,779	+41.7
Oregon, Utah, Idaho	806,643	+26.0
Total	3,597,697	+22.4
Total Manufacturing Wholesalers	69,336,111	+16.7
Manufacturing Retailers	8,450,458	+23.9
Manufacturers of Competitive Chocolate Products	14,915,275	+56.7
Grand Total All Products	92,721,897	+22.3

NEW METHODS ...PACKAGES ...PRODUCTS

A display which would impress consumers quickly and effectively with the message "here is a soup that jells" was sought for the new Consommé Madrilene introduced by Franco-American Food Co., Camden, N. J. It has been found in this cardboard likeness of a refrigerator, a box holding two 13-oz. cans and having doors that swing open to display the labels. The product is a blend of consommé and the broth of tomatoes.

With the elimination of excessive breakage and other production difficulties, the thin glass tumbler has become widely popular as a food container. One of its latest uses is for the dried beef of United Packers, Inc., Chicago, Ill. The tumblers are "safe edge"; the closure, an aluminum Goldy seal. Three sizes—2½-, 5- and 7-oz.—are packed.

Gallon jugs have gone modern. This wine container of Engels & Krudwig Wine Co., Sandusky Ohio, takes on the airs of a dainty bottle. A metal, double-shell "Caseal" screw cap closes the two-handled Owens-Illinois stock container.

Honeyed Plastic Cream

Good use of the recently developed plastic cream separator (see FOOD INDUSTRIES, April, 1934, p. 156) is being made by Adohr Milk Farms, Los Angeles, Calif. To build up its volume of sales, this firm has introduced a butter-and-honey product consisting of 60 per cent plastic cream and 40 per cent honey. With this mixture, it has the consistency of warm butter and may be used as a spread. Put up in wide-necked bottles, such as are used for sour cream, the product is marketed from wagons by driver salesmen. It has been introduced at 15c. for a half pint with the expectation that the stabilized price will be 20c.

Oven-Dated Grahams

Oven-dating is the answer of Sawyer Biscuit Co., Chicago, Ill., to the difficult task of guaranteeing freshness in graham crackers, the most perishable of all of the popular crackers. The date makes it easier for the company to control its stock and also enables the grocer to move his older merchandise first. The date, printed on the box, represents the time during which the biscuits are guaranteed fresh.

Two Foods for Roughage

Two foods containing powdered cellulose and washed bran, intended to add bulk to low-carbohydrate diets, have been introduced by Chicago Dietetic Supply House, Inc. They are Cellu Breakfast Crisp and Cellu Wafers. A cereal substitute, the former contains, in addition to the cellulose and bran, mineral oil, India gum, salt, sodium bicarbonate, baking powder and saccharin, the latter being omitted when sold in States forbidding its use.

Cellu Wafers contain the same ingredients. To prepare them, the bran is washed with cold water until the absence of starch is indicated by an iodine test. Then it is centrifuged to remove excess water, dried, ground and screened. The bran and other ingredients are mixed with the mineral oil, and boiling water is added to produce a soft dough. The dough is rolled out, cut into wafers and baked lightly at moderate temperature until dry. In preparing the breakfast crisp, the dough is pressed into strands and dried in moderately hot ovens. Analysis of the wafers shows: crude fiber, 22.1 per cent; non-available carbohydrates other than crude fiber, 35.3 per cent; fat (essentially mineral oil), 28.8 per cent.

Introduces "Draught" Beer In Keg-Lined Cans

Long awaited by the trade, beer in tin cans has become a reality. Krueger Brewing Co., Newark, N. J., recently completed favorable consumer tests and soon will introduce "growlers" to the general public.

The tinned beer is said to have a draught taste which never before has been obtained in individual containers, the flavor being preserved by a "keg lining." Then the tin fully protects the beer from light, a factor held to be of importance.

Canned beer also embodies considerable consumer convenience. There are no bottle deposits nor returnable empties, and the beer takes 64 per cent less space and weighs 55 per cent less than the average bottled beer. These latter features are advantageous to the brewer, too, as is the fact that no bottle-washing equipment will be needed and no loss of containers and beverage will be suffered by breakage in filling and capping.

Krueger's survey, covering 1,000 of

To prevent grocers from giving consumers tomato juice when they order soup, Campbell Soup Co., Camden, N. J., has redesigned its tomato juice label and adopted a larger (14-oz.) can for the product. The company believes the demand warrants the larger container.

its regular customers, revealed that over 89 per cent of the 75.6 per cent replying to the questions liked the beer in cans, and 92 per cent declared the cans to be a real advantage. Over 85 per cent expressed appreciation of the saving in refrigerator space and 92 per cent liked the idea of no deposit. Thirty-five per cent said they would buy the beer in cans in preference to bottled beer, even at a greater price, while another 53 per cent said they would prefer it at the same price.

American Can Co. helped develop the new beer can.

Drinkubes for Cocktails

Colored sugar cubes containing natural fruit flavor and fruit acid are an innovation of Home Manufacturing Co., Chicago, Ill. These cubes embody enough flavoring and sweetening for a cocktail or highball, and they may be used to prepare soft drinks. Offered in five flavors—lemon, lime, orange, grenadine and mint—the flavored sugar is marketed as Drinkubes in a metal foil box, double-wrapped with transparent cellulose, fifteen cubes to the package. Each carton contains an assortment of flavors.

Green being the favorite kitchen color, Borden Sales Co., Inc., New York, N. Y., has adopted an emerald green fluted glass jar for its malted milk. Empty, the jar makes a suitable pantry-shelf container. It has a screw top, a large opening and a wash-off label. A direction booklet is attached to the cap. The old jar is on the right.

Highly Nutritious Extract

Nutritive value of various processed foods may be increased 20 to 30 per cent by the addition of the cottonseed extract developed some months back by Prof. Kaspar Schmitt, of Heidelberg, an analyst reports. Prepared by a process of extraction, evaporation and concentration, the product resembles a yellowish flour and has the attribute of a flavor which may be disguised easily. While the color might make it unsuitable for some foods, it adapts it especially well to cocoa products.

The extract contains vitamins A, B, C and E, and vitamin D can be activated easily, according to the report. It has 50 per cent albumin and the high mineral content of 7.5 per cent. Reaction of hospital patients to whom it was fed indicate that it is a highly effective means of enriching nourishment.

A Three-Flour Flour

Self-rising buckwheat and wheat flour is a new product of Allied Mills, Inc., Kreemex Cereal division, Greenville, Ohio. The product contains not only buckwheat and standard patent flour but soya flour as well. Other ingredients include dextrose, calcium acid phosphate, salt, corn flour, sodium bicarbonate and cornstarch. Analysis shows 69.5 per cent of carbohydrates and 11 per cent of protein.

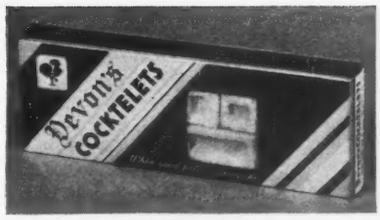
Vitaminized Canned Milk

Both vitamin D and vitamin A are added to the evaporated milk distributed by Morning Milk Co., Salt Lake City, Utah. The company fortifies each 14½-oz. can (the amount necessary to make a quart of whole milk) with 400 U.S.P. units of vitamin D and 2,000 units of vitamin A. The concentrates that go into the milk are obtained from Health Products Corp., Newark, N. J.

A number of other manufacturers of evaporated milk are introducing vitamins into it, either by adding a concentrate or by irradiation. Five companies now employ the Steenbock, or irradiation, method. These include Carnation Co., Pet Co., Borden Co., Nestlés Co. and Indiana Condensed Milk Co.

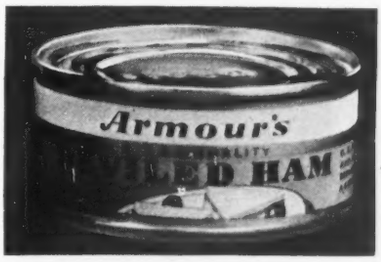
Vermont Flavored Oatmeal

Mapyl Cereal, in which Vermont maple syrup comprises the flavoring agent, is a conception of Malted Cereal Co., Burlington, Vt. Old-fashioned steel-cut oatmeal is the chief ingredient of the cereal, and to this is added a mixture of wheat flour, barley malt, corn flour and salt. The manufacturer at present confines distribution to Vermont and New Hampshire.

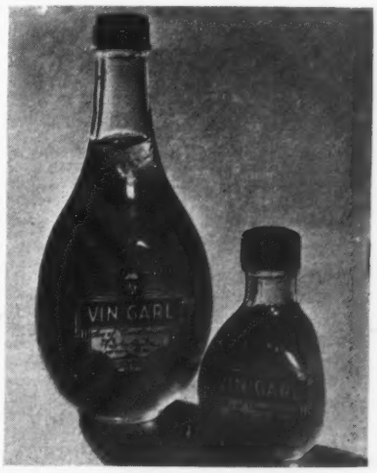


Cocktelets, crispy toasted canapes for hors d'oeuvres, have been introduced by the Devon Bakeries, Inc., New York, N. Y. Bread dough with a hollowed-out shape is used in the product. The cocktelets are placed in cardboard containers, two of which go into each package. One is wrapped in wax paper, the other in transparent cellulose for display purposes. With this arrangement only half the package is opened at a time.

"Table Packages" designed for complete visibility now carry the dates of Hills Bros. Co., New York, N. Y., to the consumer. Six different sizes will be used, all done in the Dromedary yellow, red and brown. The package has a top panel of transparent material developed to withstand the pasteurization process. It is wrapped in moistureproof transparent cellulose and has a liner and a slip-off lid.

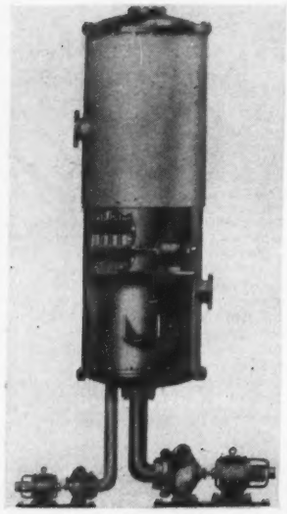


Sales have been remarkable, reports Armour & Co. of its "Dainty Spread" products, introduced this summer. The spreads include deviled ham, deviled tongue, buffet spread and liver spread, packed in 3½-oz. tin cans.



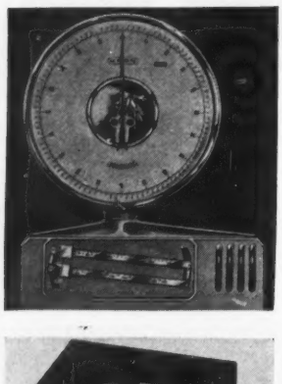
Vinegar and garlic have been combined with spicy essentials to create a new condiment, Vin-Garl. The garlic is deodorized. Ozark Fruit Co., Little Rock, Ark., packs the product in attractive, three-sided, concave bottles.

NEW • EQUIPMENT • FOR



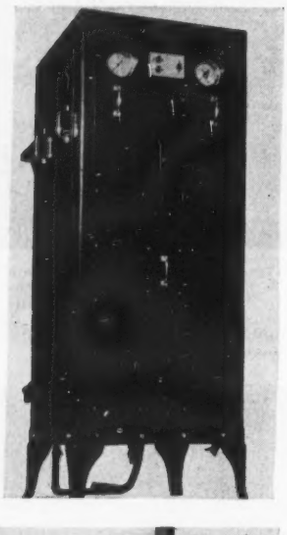
Uses Waste Steam To Cool Water

Water at from 40 to 50 deg. F. is provided economically, without a refrigerant other than the water itself, by the steam-operated cooler developed by Elliott Co., Pittsburgh, Pa. Using waste steam, the unit operates on the principle of instantaneous evaporation under vacuum. It is contained in a single tank, in which are a low-pressure evaporating compartment, a compressor of the steam jet type and a condenser. By the maintenance of a pressure of 3/10 in. of mercury in the low-pressure compartment, the water entering there will boil at 45 deg. F. Operating with waste steam at 3 lb. per square inch, the unit will produce up to 15 tons of refrigeration daily. The assembly can be installed in a space less than 3 ft. square and 8 ft. high.



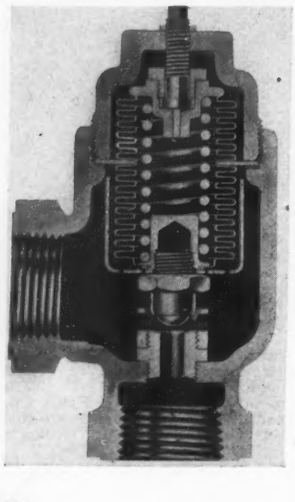
Unit-Weight Scale

For weighing larger loads by small increments when necessarily small graduations would be impracticable, a unit-weight-type, dormant platform scale has been developed by Kron Co., Bridgeport, Conn. The scale is equipped with from one to four unit weights, depending on specifications. Pressing down on the first handle adds a unit weight equal to the capacity of the dial to the weighing system. Pressing the second handle adds a second weight equal to the dial capacity, and so on. Pressing down the fourth handle adds all four unit weights at once. The weight added thus is indicated in the small window in the dial face. The scale is finished in black baking crystal with chromium-plated trim.



Oil Re-refiner

Crankcase oil can be re-refined and the reusable separated from the unusable portion with the oil refiner developed by Langlois Bros., 717 South San Pedro St., Los Angeles, Calif. The machine, which is entirely automatic, heats the oil electrically to the proper distillation point, and draws it and the purifying medium, a commercial fullers earth, to a double filtration system, which removes all solid contaminants. In a fractionating chamber the broken-down parts of the oil are removed and the color, quality and viscosity restored. The re-refined oil is then stored in a special tank for use. The dilutions, removed in the form of vapors, are liquefied by a condenser and stored for use as fuel, spring oil, body polishes, cleaning agents and so forth. The machine requires 30x30 in. of floor space and is said to be free from fire hazard.



Trap Saves Steam

By means of a differential setting screw, actual steam saving is guaranteed by the use of the Tag thermostatic trap developed by C. J. Tagliabue Manufacturing Co., Park and Nostrand Aves., Brooklyn, N. Y. The adjustable screw, shown in the diagram, may be set to discharge condensate at a temperature corresponding to as much as 20 lb. less than the operating steam pressure, without further adjustment. Thus, the manufacturer states, efficient elimination of condensate from each piece of apparatus is positively assured. The Monel valve seat is reversible, the outlet end becoming a new seat. A valve guide holds the ball valve central to the seat to insure tight closing.

Streamlined Trailer

Streamlining is a featured part of the design of the refrigerated trailer now being marketed by Fruehauf Trailer Co., Detroit, Mich. It is completely insulated throughout and measures 18 ft. x 64½ in. x 72 in. inside. Double 15-in. doors in the sloping rear afford protection to the load from weather conditions. Five inches of "Dry Zero" is placed in the ends, sides and roof, and the floor is insulated with 4 in. of cork. Three solid CO_2 bunkers inside make possible a uniform temperature.

Variable Speeds With Roller Drive

An infinite number of speeds are said to be obtainable with the variable roller drive, a mechanical speed selecter now being offered by Link-Belt Co., 910 South Michigan Ave., Chicago, Ill. Of fractional horse-power capacity, the unit is designed to carry light loads. It consists essentially of two pairs of opposed conical disks, between which a side-contact chain transmits power. On changing speed, the chain rises between one pair of disks and descends between the other pair, so that the input shaft connected to the source of power turns at constant speed and the output shaft is adjustable to the desired number of revolutions per minute. Speed changes can be made without stopping the drive. The movement of the pairs of disks, to alter their effective pitch diameters, is controlled by pivoted levers operated through a control handwheel.

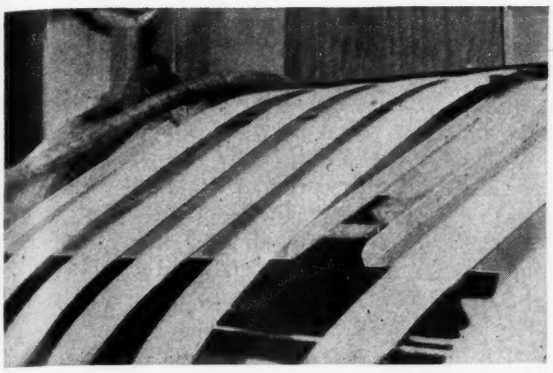
Coatings Check Rust

"Sure rust protection and prevention" is the claim for S.R.P. coatings by their manufacturer, L. Sonneborn Sons, Inc., 88 Lexington Ave., New York, N. Y. "They positively check the formation of new areas of rust," it is stated, "nor can the existing rust, as in average coatings, creep under the new film and ultimately destroy it." The paints are further said to be extremely elastic, opaque, and resistant to acids, alkalis and salt water.

Coating Machine

Use in the confectionery, baking and ice cream industries is said to be possible with the Newcraft coating machine manufactured by Newcraft Coating Machine Co., 31 Elm St., Springfield, Mass. In fact, the manufacturer states, the machine can coat anything that can be coated by hand and do it equally well. The coating is conveyed by rotating disks, and the temperature is controlled by a thermostat which operates an electric immersion unit for raising temperature and a cold-water valve. An agitator in the coating pan tempers and agitates the chocolate automatically. The enrober requires 1½x7½ ft. of floor space; a delivery table, as shown, is included in the unit.

FOOD • MANUFACTURERS



FlakIce Machine Makes "Salt Ice"

Another commercial refrigerant which promises to have wide usage—salt ice or frozen salt—is produced with the FlakIce machine by a process developed by Salt Ice Corp., 185 Montague St., Brooklyn, N. Y. The frozen eutectic salt is made by mixing water with sodium chloride in the ratio of 76.7:23.3 per cent. This brine is frozen on the FlakIce machine into ribbons, the inner compartment of the cylinder being filled with freezing calcium chloride at —30 deg. F., and the cylinder rotated. So rapid is the rate of transfer of heat from the brine solution to the calcium chloride that the salt in solution cannot crystallize out. At a given point in the rotation of the cylinder a roller within the cylinder deflects the Monel metal surfaces, and causes the salt ice to peel off and drop into holding bins below. The salt ice then may be used in bulk (the pieces are from 1 to 3 in. square and from $\frac{1}{16}$ to $\frac{1}{4}$ in. thick), or it may be pressed into blocks, usually 10x10x8 in., with a hydraulic press. In the latter case, various kinds of molds may be used to produce blocks for particular kinds of bunkers. The product is snowy white and weighs 32½ lb. per cubic foot in bulk and 65 lb. per cubic foot in block form. It melts at —6 deg. F., and absorbs 101.5 B.t.u. per pound. When the product melts, it is said to be free from sludge or precipitate; thus the refrigerant can be used again and again.

The Manufacturers • • Offer • •

Purchasing—Recent developments in its technique and executive control. Food Services, Inc., 369 Lexington Ave., New York, N. Y. Booklet, 11 pp.

Quick-Freezing—By the "Z" process. American Z Corp., Rochester, N. Y. Illustrated folder.

Microscopes — And accessory research equipment. Bausch & Lomb Optical Co., Rochester, N. Y. Booklet, 23 pp. Each item well described and illustrated.

Steam Traps—The Armstrong line. Armstrong Machine Works, Three Rivers, Mich. Catalog G, 29 pp.; illustrated. Includes helpful data for the buyer's guidance.

Generating Sets—Troy-Engberg, to reduce power costs. Troy Engine & Machine Co., Troy, Pa. Bulletin No. 107, 32 pp.; well illustrated. Supplies d.c. and a.c. production data.

Control Valves—Electric, for refrigerating plants. Frick Co., Inc., Waynesboro, Pa. Bulletin No. 203-B, 20 pp.; illustrated. Includes typical installation diagrams.

Monel Metal—And nickel applications to industrial equipment. International Nickel Co., Inc., 67 Wall St., New York, N. Y. Booklet, 34 pp. Includes discussions of corrosion-resistance.

Instruments—Recording and controlling, for humidity and drying processes. Foxboro Co., Foxboro, Mass. Bulletin No. 188, 31 pp.; very well illustrated. Installation diagrams included.

Filling Machine—The S & S "Universal". Stokes & Smith Co., 4901 Summerdale Ave., Philadelphia, Pa. Illustrated folder.

Blowers — And exhausters, single-stage centrifugal type. Roots-Connersville Blower Corp., Connersville, Ind. Bulletin 120-B10; illustrated folder.

Time Advertising — "The Added Increment." Columbia Broadcasting System, 485 Madison Ave., New York, N. Y. Booklet, 18 pp.

Balances—For precision determinations. Roller-Smith Co., 233 Broadway, New York, N. Y. Catalog 240, 7 pp.; illustrated.

Pests—"Insects in the Bakery," a talk by R. C. Sherwood, General Mills, Inc. American Society of Bakery Engineers, 1541 Birchwood Ave., Chicago, Ill. Bulletin No. 96, 7 pp.

Water Stills—Industrial and laboratory types. U. S. Bottlers' Machinery Co., 4015 North Rockwell St., Chicago, Ill. Booklet, 15 pp.; well illustrated.

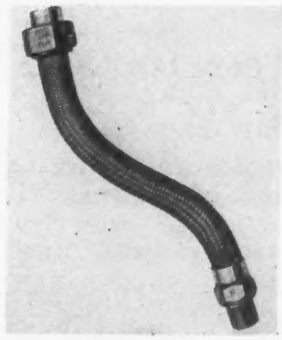
Graphite—"Microfyne" flakes, for use in the Graph-Air gun. Joseph Dixon Crucible Co., Jersey City, N. J. Illustrated folder.

Thermostats — Non-electric, for temperature and pressure control. Fox Engineering Co., 36 Portland St., Boston, Mass. Illustrated folder.

Laboratory—Distillation, digestion and other equipment. Laboratory Construction Co., 1113 Holmes St., Kansas City, Mo. Booklet, 39 pp.; well illustrated.

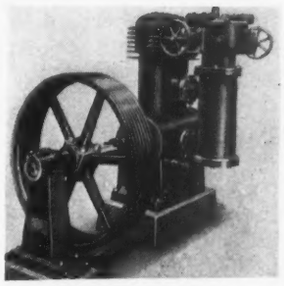
Flexible Conduit

Watertight, vaportight and explosion-proof, Pyle-O-Flex, manufactured by Pyle-National Co., 1334 North Kostner Ave., Chicago, Ill., is a flexible conduit fitting to be used in refineries, grain elevators, breweries and other food-processing plants. It withstands vibration, is said to withstand 500 lb. hydrostatic pressure, and at 50 lb. air pressure to be proof against leaks under water.



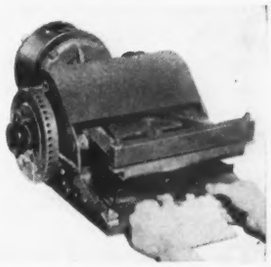
Freon Compressors

Designed particularly for air conditioning, a line of inclosed-type Freon compressors with capacities ranging from 15 to 300 tons of refrigeration has been announced by Frick Co., Waynesboro, Pa. The machines have twin vertical, single-acting cylinders, plate-type valves being used for both suction and discharge. Each compressor has a force-feed lubricating system; the oil, coming back with the suction gas, is separated from it in a large trap below the manifold, and then returned to the crankcase. Either V-belts or direct synchronous-motor drives are standard equipment.



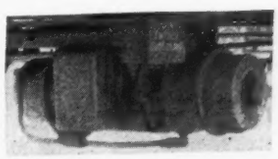
Seals by Crimping

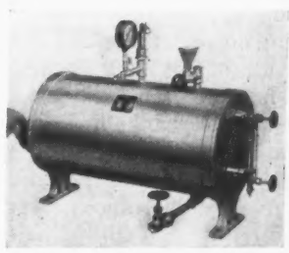
Transparent cellulose bags may be effectively heat-sealed by crimping with the Wrapade power crimper and sealer offered by Wrapade Machine Co., 215 Central Ave., Newark, N. J. It is equipped with a pedal which allows the operator to use both hands. When the bag's edges are placed in the jaws and the pedal is tripped, the jaws close until they are ¼ in. apart. The clutch is released and the jaws close, sealing the bag and returning automatically to their original position. An integral electric motor supplies power to operate the jaws, thus insuring uniform pressure. Electrical units in the jaws supply the heat, the temperature being controlled by a rheostat. The machine seals any bag or envelope made of heat-seaing material at the rate of 20 to 35 per minute. It is 11 in. wide, 15 long, and 10 in. high.



Car Loader

Container handling in less than carload lots is made considerably simpler by the use of a P&H Milwaukee hoist manufactured by Harnischfeger Corp., 39th and National Aves., Milwaukee, Wis. By its use, large containers may be transferred from truck to car and vice versa. As shown, the hoist mechanism is mounted beneath the car, the power being applied through a cable running up through the floor of the car and over a system of pulleys. Railroads and rapid-transit lines in several sections of the country have followed such procedure in loading cars with refrigerated containers holding perishables.





Fills Small Needs For Steam

Small quantities of steam at high or low pressures, such as required in various manufacturing processes, can be supplied with the miniature generator developed by Commonwealth Electric & Manufacturing Co., 83 Boston St., Boston, Mass. The electrical heating unit is arranged for operation on any circuit. When the three-heat switch is snapped on, a full head of steam under pressure is available within 30 minutes from a cold start, according to the manufacturer. The rate of generation may then be cut down with the three-heat switch, if necessary. The water may be replenished to maintain normal levels by opening the valve on the city supply line or by pouring it through the filling funnel when no pressure is up. The condensate from coils, tables, kettles or presses may be piped back by gravity, or the generator may be placed on the floor below. The generator is offered in capacities of 1/5 to 1-4/5 boiler horsepower, or 2 to 18 kilowatts.

There Is a COCOA for Every Use

(Concluded from page 403)

manufactured from cheap, low-fat cocoa cake by extracting the remaining fat with such solvents as benzol. Solvent-extracted cocoas have practically no chocolate flavor. Some have a faint odor and taste of the solvent. They usually are high in moisture content, running at times as high as 10 per cent instead of the more normal 4½ per cent. Solvent-extracted cocoas are used also as dusting powders in confectionery and for the preparation of imitation chocolates.

9. **Byproduct cocoa** and cocoa cake usually contain 5½ to 11 per cent cocoa fat. This product is obtained by pressing cocoa "fines" and dust and off-quality beans through the Anderson expeller. The byproduct cake has a limited use as a fertilizer ingredient, as raw material for theobromine extraction, and for cattle feed. Its use for the latter purpose is extremely limited, as not very satisfactory results have been obtained by its use for feeding purposes.

10. **Prepared cocoas** are cocoa mixtures, such as cocoa and sugar; cocoa, skim milk and sugar; and cocoa, malt, skim milk and sugar, with or without flavors and spices. They are used for "instant" chocolate and milk drinks in ice cream parlors, and are portioned into envelopes for use in the home. The content of each envelope is sufficient for the preparation of one cup of beverage.

In the packaging of cocoa it must be remembered that cocoa will pick up moisture from the air in proportion to its fat-free cocoa content. Also that the more "Dutched" and the more finely powdered it is, the more moisture it will be likely to absorb.

Cocoa is best stored in a cool, dry place, free from violent vibrations. The ideal temperature and humidity are 60-70 deg. F. and 50-65 relative humidity. Heat, vibration, and moisture cause cocoa to lump and lose its apparent color, to become dull and gray. In this lumpy, discolored condition, cocoa is rather difficult to mix, but its quality has not actually been damaged, as it readily regains its natural state when blended homogeneously with other ingredients, when mixed into a bakery dough and baked, or when made into a syrup.

In late years cocoa is practically never sold "loose" to the retail trade. When intended for use as an ingredient or intermediate product for further manufacturing purposes it is packed in wooden barrels having an inner lining of the kraft paper safety-bag type and containing approximately 185 lb. net weight of cocoa. Cocoa is also packed in paper-lined burlap bags, in steel drums, and in 3-ply kraft paper bags. Smaller quantities are also packed in fiber drums containing 25 to 100 lb. net weight.

The paper and burlap bags are mostly for users of large quantities of cocoa where factory-to-factory deliveries are required and where the cocoa is used almost immediately upon receipt.

For retail or household consumer trade cocoa is packaged in paper bags, cardboard cartons, fiber cans with tin-plate tops and bottoms, tin cans, and glass jars.

The paper bags for retail sales are usually of relatively strong white paper type, embossed and waxed-paper lined, and contain from ½ to 2 lb. of cocoa. Although this is an economical method of packaging there is the possibility of the bag becoming damaged and the cocoa spilling out.

Cardboard and fiber cartons comprise the ¼- to 5-lb. packages and usually have an attractive label with a high gloss and a shellac coating which protects against heat and moisture absorption.

Tin cans find use mostly for expensive cocoas and come in 2-oz. to 10-lb. sizes. Some tin cans are lined with waxed-paper bags. Cocoa will keep almost indefinitely when packed in this manner.

Glass jars, usually from 4-oz. to 2-lb. sizes, are used, but they are not so popular because they are expensive and because a film of cocoa butter forms on the inside of the glass, giving the contents a dull, uninteresting appearance.

Photo-electrical Packaging

(Concluded from page 401)

ally when it is desirable to vary the rate of feed. One of the more common of these comprises a differential drive connected between the feed rolls and the cutter. This resembles the differential of an automobile, with the propelling shaft driven at constant speed by the main motor, one axle connected to the feed rolls and the other geared to a small variable-speed motor. Being electrically connected to the control circuit, the speed of the small motor increases or decreases to make the proper change in the speed of the feed rolls. This system not only makes a correction but alters the speed of the feed roll to effect closer synchronization.

Speed of operation, always important to low-cost production, is nowise hampered by the photo-electric control. The speed of these machines is a factor of the rate of wrapping only, for the thyratron tube requires less than 1/10,000 sec. to initiate a correction. With a wrapper traveling at a rate of 300 ft. a minute, to take a concrete example, 1/2,000 sec. is available for indicating an error of $\frac{1}{32}$ in. in register.

While there are other methods of feeding printed wrapping material from rolls, none has proved as satisfactory as the photo-electric one. Metallic inks which will make and break electric circuits have been tried with some success. Holes punched in the paper at intervals also have been employed, and an expanding and contracting unwinding roll with manual control comprises a third method. Metallic inks increase the cost of the paper, as does the use of punched material. The third method boosts costs because of an extra operator.

With photo-electric control, however, there is no additional operating expense. In fact, the wrapping material costs less, for printing transparent cellulose in rolls comes at least 10 per cent cheaper than in sheets. Sometimes the saving amounts to 20 or 25 per cent

It may be that photo-electric control of production operations sometimes is not altogether practical, but it certainly is worth its salt on machines handling printed transparent cellulose wrappers. So finds a company that uses it.